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AMERICAN PHOTOGRAPHY

Published Monthly
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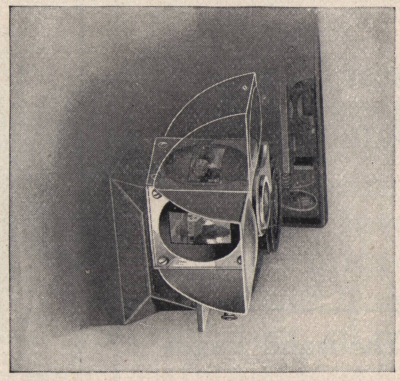

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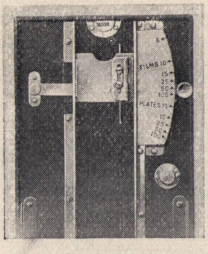
Focusing
Scale



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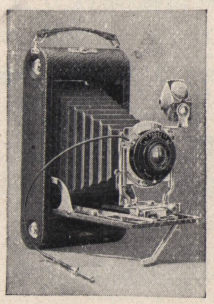
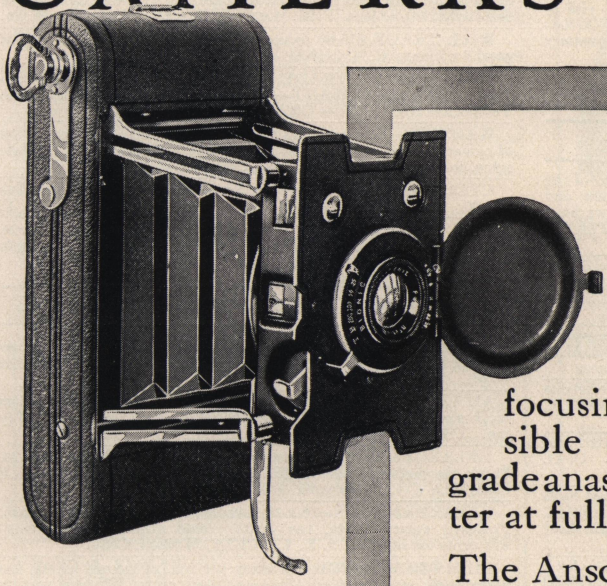


See pages 12, 13 and 14 of the 1915 Ansco Catalog

ANSCO COMPANY

Binghamton, N. Y.

ANSCO
CAMERAS & FILM



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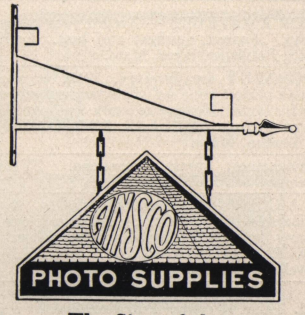

The Sign of the Ansco Dealer

ANSCO COMPANY
Binghamton, New York

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FOR SALE — Seroco 4 x 5 plate camera, tank and complete outfit. 4 x 5 Aplanat lens, *f*: 8. $5.00. WALTER RANDALL, Manna, Sask, Can.

WANTED — Korona or Seneca view camera, 5 x 7 convertible lens; also 2¼ x 3¼ double bellows extension camera. H. BRAUER, Muskogee, Okla.

FOR SALE — Photo studio fitted to 8 x 10 electric lighted and amateur finishing department. A bargain for somebody. O. O. WINN, Box 41, Montrose, Colo.

BECK 5 x 7 anastigmat, *f*: 5.8 in Autex shutter; combined focal length 7¼ inches; front 11 inches; rear 13 inches; good condition. Real bargain at $32.50. ARTHUR E. ANDERSON, 322 West Kinzie St., Chicago, Ill.

WANTED — Case for No. 3 Crown tripod. FOR SALE — 5 x 7 Novo tank, $1.50 postpaid, cost $7.50, good condition. ALONZO PRICE, Waldron, Ind.

ICARETTE, model A, *f*: 6.8 Hekla lens and compound shutter, little used; almost like new. Cost $25.50; take $16.00. CHAS. D. HOWARD, Concord, N. H.

TRADE — 3A kodak for vestpocket with anastigmat lens, good shutter or Verito about 9-inch focus in good shutter. NEIL NORTHEY, Crook, Colo.

WANTED — Graflex camera, good lens, fair body. Have 5 x 7 Premo, large outfit, rifle, watch, fishpole, and various other articles. ROY GOREE, Inman, Neb.

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FOR SALE — At one-third retailer's price, 8 x 10 reversible brass developing tank, 8 x 10 clouded background. Packard Ideal studio shutter, etc. For further information, write W. P. EICHER, Wayland, Iowa.

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SALE OR EXCHANGE — 8 x 10 camera, B. & L. Plastigmat *f*: 6.8 convertible lens, volute shutter, 6 holders. WANT — Graflex or small camera, *f*: 4.5 lens. Must be in good order. What offer? A. T. WILLIS, Box 301, Spartanburg, S. C.

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CAMERAS AND SUPPLIES

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WILL TRADE $75.00 fishing tackle outfit for view camera or good 5 x 7 lens. C. H. LUND, Box 114, Evanston, Ill.

WILL SELL OR TRADE 4 x 5 Conley Model XV or Eastman Vestpocket Kodak. WANT — Good 5 x 7 view camera and Ansco Vestpocket No. 2. Write ORAN SMITH, Louisiana, Mo.

WANTED — Compact Graflex, complete. State price, condition of camera. Also want 5-inch roll film tank developing outfit. State price, condition. BUD WISWELL, Westbrook, Minn.

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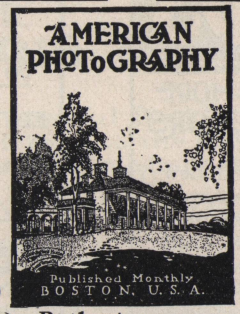

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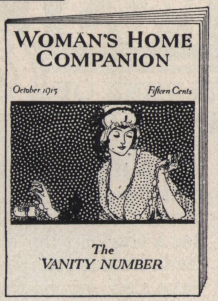

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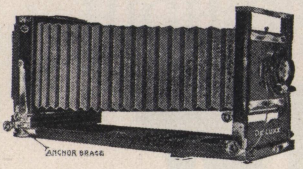

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AMERICAN PHOTOGRAPHY

INCORPORATING

AMERICAN AMATEUR PHOTOGRAPHER, ESTABLISHED 1889 CAMERA AND DARK ROOM, ESTABLISHED 1898
PHOTO BEACON, ESTABLISHED 1889 CAMERA NOTES, ESTABLISHED 1897

Published monthly by the American Photographic Publishing Company, 221 Columbus Avenue, Boston, Mass.
Single Copies, 15 cents. Subscription price, $1.50 a year in the United States, and also to Mexico, Cuba, Porto Rico, Canal Zone, Philippines, Hawaii, Tutuila, Guam and Shanghai. Canadian postage, 35 cents per year extra.
Foreign postage, 75 cents per year extra.

EDITOR: FRANK R. FRAPRIE, S.M., F.R.P.S. ASSOCIATE EDITORS: F. C. BEACH, PH.B., M. O. SAMPSON, E. S. ANDERSON

Manuscripts and photographs submitted for publication must be accompanied by sufficient stamps for their return if unacceptable. Original manuscripts on photographic subjects are solicited, and if accepted will be paid for on publication. New ideas, practical hints, and reports of club activities are desired. Matter intended for publication in any number should reach us not later than the 5th of the previous month.

Subscribers who change their address must notify us, giving both old and new address, before the 15th of the month, to affect the magazine for the month following. The Postoffice does not forward second-class matter, and the publishers are not responsible for non-delivery of magazines if not notified of change of address.

WHOLE NO. 321
NEW SERIES NO. 105

MARCH, 1916

VOL. X, NO. 3

PRINCIPAL ILLUSTRATIONS

ARTICLES AND DEPARTMENTS

The Southgate Press, Boston

AMERICAN PHOTOGRAPHY

VOL. X BOSTON, MASS., MARCH, 1916 NO. 3

ATTENTION H. BERSSENBRUGGE

First Prize, January Competition

THE PICTORIAL PHOTOGRAPH

EDOUARD C. KOPP

RT is the systematic application of knowledge or skill in the effecting of a desired result, especially in the production of the beautiful by imitation or design"; this from Webster. Pictorial art, then, means the application of a definite knowledge or skill to the production of a picture.

Pictorial art is not the mere rendering of an exact imitation of an object or scene; such a rendition might be a picture, but it would not be art. The art is the personal factor in the picture; it is the *plus* which makes a picture more than a diagram; it is the projecting of imagination into the thing depicted. Jaroslav is a diligent student, and every day finds him at his easel, where he works with feverish interest and intent; but he lacks imagination. Alexei works only a little less diligently, but is rich in imagination. As a boy he was called — "well, a bit peculiar," with a significant tap of finger against temple, because he peopled the flying autumn leaves with strange little fairies of his own imagining. He would catch the leaves tenderly as they fell, and speak to them. "Fedora, little fairy," he would cry as he held a captive leaf to his ear, "have you a good word for me to-day?" No answer; he would drop it in pursuit of another. Jaroslav and Alexei set up their easels side by side at the bank of the river, and later they submit their work to the academy. Alas, poor Jaroslav! That was years ago; he is now earning a meager living in the government employ as a clerk, but Alexei — people speak in awed whispers as they pass his canvases in the great galleries of Petrograd and Moscow. Alexei has that *plus* which makes his pictures art.

The photograph, for many years the butt of every artist's irony and satire, is finally taking its rightful place among the fine arts. Shall we revile the painters that they did not at once welcome with open arms the photograph as artistic? No! let us remember that theirs is an ancient art, that the apprenticeship is long and arduous; let us remember, too, the photograph of thirty years ago. And let us not forget the portraits of early years, the too evident posing, the awkward hands, the hideous background? Who has not in his family album the photograph of an innocent, pig-tailed little girl standing stiffly beside a gigantic broken column of an ancient Grecian temple, to which has been fastened in some mysterious manner a portière which falls in soft voluminous folds cut off abruptly where they touched the floor? Who has not seen those photographs which were merely records? A mansion was but a house, only that and nothing more; a tree was a tree, a maple tree, if you were particular, but, after all, only a tree. In those old pictures the sun nearly always came from just the same spot behind the camera, and one could almost hear the instructor say, "Forty-five degrees over the left shoulder, please." The shadows fell away always in the same direction, picture after picture. But let us not be too harsh toward the pioneers; let us but examine the work of to-day when every man does some photographic work, and cease to wonder why the art was not recognized years ago. Look at the pictures our friends exhibit to our weary eyes; pictures in soot and charcoal with no intermediate shades, no blending, no roundness, no composition; nothing of what we would look for in a drawing or an etching; nothing of art. How can we ask that the ancient guild bowing before Tintoretto, before Correggio, Paul Veronese, and others of their stamp, should welcome this changeling, photography, which masks as pictorial art but shows so little of the divine; which makes pictures, truly, but exhibits scarcely an iota of imagination, and merely offers hard and cruel representations of nature?

There have, however, from the early days of photography been a few exponents of the artistic side of the work — even in 1846 David Octavius Hill, the Scotch painter, made

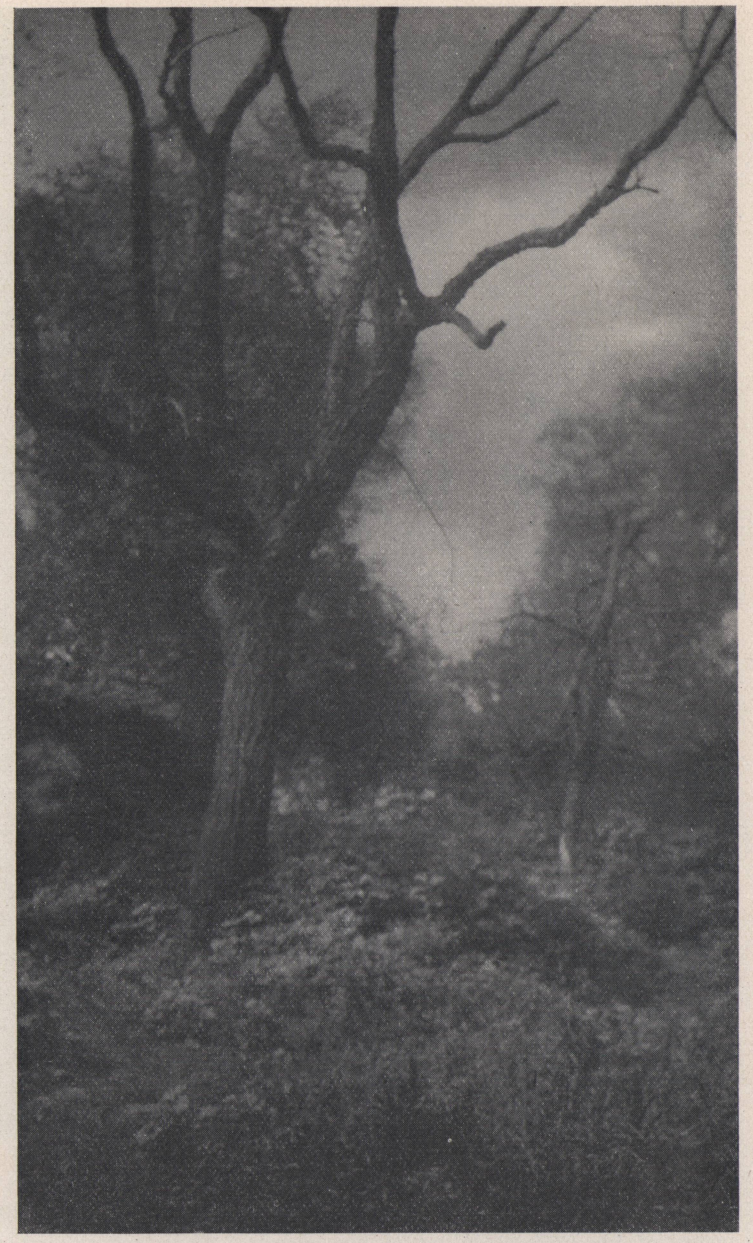
LANDSCAPE
H. VON SEGGERN

pictures of artistic merit — and from that time to this their number has increased steadily; people who exploit photography not merely to record scenes and faces, but as a medium of artistic expression. We see the names of such artists as Mrs. Cameron and H. P. Robinson in the early times, and now as our contemporaries Steichen, Coburn, Demachy, and a host of others. These are people who use the camera to express the artistic ideals they hold, who infuse their personalities into their pictures. And when such work as they have done and are doing is turned out into the world, be the medium what it may, dare we say that it is not pictorial art? Ruskin has said "that art is valuable or otherwise, only as it expresses the personality, activity, and living perception of a great human soul," and surely some of the photographs by our great pictorialists do express such a personality, activity, and living perception. And why should not a great human soul find its medium of expression in photography?

True, the artist of the lens has restrictions on the pure reign of his imagination unknown to workers in other fields of pictorial art. If Giacomo is painting a scene and a tree does not compose well he eliminates it; if he paints a distant town he rearranges his cathedral spires — what matter if he put three where there were but two before? so the picture is the better! If Harvey goes forth with his camera and a tree does not compose, he must either abandon the picture from that viewpoint or take it tree and all. If he is wise he will seek another viewpoint rather than take the poorer picture. If Giacomo paints a landscape on a clear day he will draw on his imagination for his clouds. Harvey cannot draw upon a convenient imagination, but he can make another exposure and "fake" in the clouds from the new negative. Here a storm of disapproval greets us; "illegitimate!" is the cry. And why, pray, is that illegitimate, if we have our shadows falling right and the light coming on cloud and landscape from the same point? Surely our clouds were at least clouds, real clouds from God's own blue heavens, while Giacomo's were born but in his mind. But let them have their way. Does that make photography no art because the photographer cannot make the same pictures a painter can? Can a pianist play with any degree of artistic effect Bach's Chaconne for violin alone? Not unless he rearranges it to suit the technic of his instrument. Ah, but then we no longer have the original Bach. And yet that does not argue that because the piano cannot get certain effects possible upon the violin it is not an artistic instrument.

Suppose Harvey take his photograph, and by judicious exposure, development, and manipulation of the print make a perfect picture, one before which you stand silent and with that pleasure which only true art can give; will the fact that it is a photograph make it any less beautiful? Will it detract from the power of the picture? Will it be any less artistic? Yes! such pictures have been made; many of them.

There are five essentials by which art is judged: unity, repose, symmetry, proportion, and moderation; all of which the camera artist can and does use in his work. Unity, the fit connection of all parts to a perfect whole, has long been recognized in every art, in literature, in music, in architecture; and the pictorial photographer has not been slow to concede the power of that law. Of repose, says Ruskin, "No work of art can be great without it and all art is great in proportion to the appearance of it." Of symmetry and proportion he says, "Symmetry is the opposition of equal quantities to each other; proportion, the connection of unequal quantities with each other." Surely there is no difficulty thus far which need appall the photographer, no insurmountable barrier, like the ancient wall of China, to say, "Thus far and no farther!" Here are no laws which the restrictions of his medium make it impossible for him to follow. To quote Ruskin further, who was no narrow conservative though he failed to recognize our Whistler (for let us



THE DEAD TREE
R. S. KAUFFMAN

not forget that he defended Turner); "Over the doors of every school of Art, I would have this one word, relieved out in deep letters of pure gold,— Moderation." May not the photographer practice moderation? Because the average amateur lets his enthusiasm run riot and revel in excess, in overcrowding, in overdetail, in the very gluttony of superlatives and mixed themes, it does not follow that the epicurean taste of an earnest pictorialist may not practice the most conservative moderation.

All of these five requisites may be embodied in one picture, and yet if it lacks one of two intangible things we call inspiration and taste — though it catch the eye and commendation of contemporary critics — it cannot live as a work of art. What is inspiration? It is that inner light which illuminates the imagination, it is the tongue in the bell of artistic utterance, it is the voice which whispered into the deaf ears of Beethoven, it is the light which was visible to the blind eyes of Milton, it is the hand which guided the brush of Michael Angelo, and it is the breath which made the voice of Patrick Henry ring for liberty. To the man of genius it is everything, but to the common man it is nothing, for it is beyond the grasp of his faculties, it is infinity, but a name. Between him who has inspiration and him who has none lies not only the breadth of unfathomable oceans, but infinity and centuries of time. Taste is critical discernment inborn, a something which can be developed in those who have it, but cannot be attained by those in whom it is not inherent.

The pictorial photograph, attained, if you will, by mechanical means — a box, a piece of glass, an emulsion of silver salts, and chemicals — must as surely speak of inspiration and taste as does painting, if it is to be a work of art; and in just so much as it lacks of these elements will it fall short of a vital and enduring art creation. I do not ask that any advantage be given, that any laws of criticism be suspended in judging the art status of a photograph, but I do ask, in all fairness, that a picture shall not be discriminated against merely because of the medium of its creation. Leonardo protested against the unjust discrimination against painting in his day; he protested both in words and in the perfection of the works of his brush, and so, too, will the photographer have to protest: not only in word, but by forcing acknowledgment by the sheer beauty of his production.

The number of photographic pictorialists is constantly increasing, and the exquisite quality of their work is gradually forcing the barrier. A review of the achievements of these exponents of the pictorial photograph proves that theirs is a vital art; that it is possible by the use of a camera to produce pictorial art of the highest quality; art appealing to the imagination and the intellect; art which will stand the critical tests applied to any field of monochromatic art. Study the marine photographs of Mortimer; they are not pictures of the arrested motion of a wave, anyone can make such; they are, rather, pictorial representations of the various moods of the ocean herself; they are full of flying spray and mist. They are photographs of the ocean, surely, but more of Mortimer's love of the ocean, of his understanding of her moods. They are the effecting of a desired result, the production of the beautiful by knowledge and skill; they are essentially art. We have Keighley's forest pictures. Who has not seen the usual forest photographs? Trees like so many leafy telegraph poles, and as inspiring; a path which meanders along only to lose itself into indefiniteness somewhere in the middle of the picture, a strong line leading nowhere; blotched shadows and highlights; nothing but a tangle of lines and masses, chaotic and unrelated. Keighley's work is none of this. He photographs not the woods itself but the atmosphere of the woods, the feeling of trees rather than the trunks of them, the glow of light sifting through the leaves rather than the brightness of the sun. After viewing a Keighley forest scene one feels the breeze in his face, smells the musty odor of leaf

PORTRAIT
ATELIER ELISABETH, MÜNCHEN

mold, hears the rustle of leaves, and feels his feet damp with the morning dews. The pictures are not so much the forest as they are the poetry of the forest, the beauty of the forest seen through the eyes of the artist; and it is that which makes them art. It were easy to multiply instances of what the greater pictorialists are doing to achieve a place on the narrow pedestal of fine art; to speak of Arbuthnot, of Coburn, of Demachy, of Stieglitz, of Dührkoop, and a host of others; they are all working seriously and intensely toward the goal, and their goal is a worthy one: Art.

Leonardo da Vinci left among his writings this little scrap: "Those who are in love with practice without knowledge are like a sailor who gets into a ship without rudder or compass, and never knows whither he is going." Ruskin wrote: "There are laws in painting"—and why may we not substitute the words pictorial photography for painting?—"just as fixed as those of harmony in music or of affinity in chemistry. Those laws are ascertainable by labor, and ascertainable no other wise." One of the principal things which militated against the photograph as belonging to art production for so many years was ignorance. Photographers were diligent in the pursuit of the technic of the mechanical side of their art; they burned the midnight oil in research after better lenses, better sensitive emulsions, better developing agents, but neglected to serve their apprenticeship in art, and consequently their work was only mechanical; it had nothing of true art in it and could, therefore, shed no ray of artistic pleasure into the heart of the onlooker. It was ignorance which was the barrier, and only the light of a truer knowledge of the principles of art will open the door of welcome into the shrine of the muses. The photographer who would enter the pictorial field must and can enter only through the gates which lead to all art: reverence; study; a thorough knowledge of art principles and the medium he is working in; infinite patience; and God-given inspiration.

INDIAN SUMMER FRANK HART

Honorable Mention, December Competition

ON A TROUT BROOK
DR. F. F. SORNBERGER
Third Prize, January Competition

"THE STEERAGE"

M. DE ZAYAS

IN 1907 Stieglitz, in the photograph which we publish in the present number of "291" under the title "The Steerage," obtained the verification of a fact.

The desire of modern plastic expression has been to create for itself an objectivity. The task accomplished by Stieglitz's photography has been to make objectivity understood, for it has given it the true importance of a natural fact.

He has surpassed "Art," that idiotic word which during centuries has dominated everything, and which in reality has only expressed a mental state, a state of unconsciousness. "Art" has become an esoteric God who had for his sole prophet "Conventional Beauty." "Art" and "Conventional Beauty" together have exercised a tyranny. It is surely due in great part to photography that we have finally freed ourselves from that spell. We have escaped from the fetishism into which that word "Art" had hypnotized us, making us insensitive to the respective realities of our inner selves, and of the outer world.

I speak of that photography in which the genius of man leaves to the machine its full power of expression. For it is only thus that we can reach a comprehension of pure activity. Objective truth takes precedence over Stieglitz in his work. By means of a machine he shows us the outer life. Stieglitz comprises the history of photography in the United States. "Camera Work" bears witness to this. If he has given sometimes too much importance to the intellectual juggleries of others in mechanical representation, he has unwaveringly put into practice the principle of Boileau, "Nothing is beautiful but the truthful." And in seeking truth he has acted as a real creator.

If modern plastic expression has made us conceive the possibility of creating new forms to express new sentiments, photography in the hands of Stieglitz has succeeded in determining the objectivity of form, that is to say, in obtaining the initial condition of the phenomena of form; phenomena which, under the domain of human thought, give birth to emotions, sensations and ideas.—*"291."*

ART OR BUSINESS—WHICH SHALL IT BE?

A Plea for Creative Business Methods in Professional Photography

J. CLYDE WILSON

THE time is fast passing when a man can gather together a stock of goods, open a store in some likely location, and sit back to wait for business to come to him. A few decades ago, when transportation was more expensive, and roads and other facilities for travel were fewer, we felt satisfied to find a store-house in our neighborhood at all where we could satisfy our needs. We were ready to go out of our way to reach it, and to pay high prices for its wares, because necessity left us no alternative. Now, however, things are different. The railroads cover the country in one huge network, so that almost every rural hamlet has some connection with the great city markets. Moreover, stores have multiplied at a great rate. Where formerly one general store fulfilled the needs of the community, the smallest places now often boast their bazaar, their shoe store, their jewelry store, table-supply house, and what not. In the big cities the change is not less notable. Every considerable neighborhood now has its little community of merchants, each specializing in some particular commodity or luxury needed by its patrons. The result of this growth of trading opportunity has been to make the buyer more critical, because, with more inducements to buy, his

THE STEERAGE
ALFRED STIEGLITZ

taste has broadened and his requirements have increased out of all proportion to his increase in income. Consequently he has had to exercise a greater discrimination in purchasing. He cannot have everything, and so he buys only that which most appeals to him. The consequence is that some merchants who cannot make a strong appeal for patronage are faring badly. In fact, since tastes differ, each has lost some patronage that has gone, not to competitors in his own line of business, but to merchants handling other lines. And so, where the merchant formerly sat back in his chair and comfortably awaited his customers, to-day he must get out and work to bring those same customers in if he would not go under the sheriff's hammer.

Photographers have not been ready or willing to recognize these trade forces, and yet their business has been one of those most severely affected by these conditions. We have been altogether too prone to regard our vocation as a profession, pure and simple, like the law or medicine, or as an art, like painting or sculpture, which wins its way by some individual peculiarity of its maker which puts it beyond competition. Talent, we realize, is an individual possession and hardly to be measured by the valuations of commerce. Regarding ourselves as artists, we have sat back complacently, content in the presumption that our name would be wafted about in reverent whispers of admiration and people would seek us out. Isn't that absurd on the very face of it? It is all very well as an abstract proposition. Photography in its finer expression is indeed an art — and one of which the writer is very proud, and with which he is entirely in sympathy, having been himself a Salon exhibitor — but, after all, isn't photography just plain bread and butter to most of us — our business and means of livelihood? We have been too ready to assume that we were selling our skill as artists, without having got the public's verdict in the matter. It is true that in such subtle matters as art there can be no competition, in the commercial sense, for the artist's work achieves its virtue by its individual power, and every artist expresses himself differently. The patronage which one man would create for his work would in no sense compete with that of his fellow artist, because the work of each would appeal to different individuals in very different ways. You will recognize a portrait by Dudley Hoyt, or Garo, Lifshey, Strauss or Clark at once. Their personality is indelibly impressed upon it, but you are not likely to be equally impressed by the work of all of them. Your individual tastes will affect a bias in the favor of some particular method employed by one or other of them. It is quite evident, therefore, where you would turn your patronage were you considering a sitting and weighing their individual merits. These men may perhaps sit back waiting for business, making capital of their genius because they can afford to do so. But is this a legitimate or wise stand for the average photographer to take?

The standard of professional photography in America to-day is very high indeed, and it is growing better every day with the dissemination of knowledge by the photographic journals, and the fine opportunities which are offered by the conventions and through the educational efforts of photographic manufacturers. In spite of this, even in the best studios there is a sameness about the work, a sort of monotony of method, which is not to be condemned necessarily, but which is not art. The posing is good, the mountings are attractive, the technique is satisfactory, the workmanship all that could be desired; in fact, the work is thoroughly good as photography, and the sort of pictures people like, and will buy, but it is not art. There is nothing which distinguishes the work, makes it stand out as the expression of one who saw deeply and revealed personality with searching vision — it is just good competitive photography. You may visit the studios of half a dozen photographers in every large city and, though you will observe individual excellences in the work of all of them, and it may be thoroughly good, still there is little to choose between them. They

THE MILL ROAD
JOHN F. JOHNSTON

are all making white vignettes because they are the style. Each is making 10 x 14 artist's proofs or 5 x 11 panels done in sepia, because everybody else is — and the public wants them. What is it but so much merchandise they are selling? Why, then, this hesitancy on the part of photographers to come out in the open and acknowledge that photography is their business, and to apply the tactics of business to its promotion? Every photographer must decide for himself if he can afford to stand aloof and attract business on the strength of his individual genius, or whether he ought to swallow his pride and accept himself as one engaged in a money-making business which must follow the inexorable laws of business and cannot escape the competition of other businesses. I have no quarrel with either conclusion, for they are both legitimate, but it is a pity photographers should be constantly asking, "What is the matter with photography?" while they honor the delusion that the public bows to them or holds them in higher esteem than they do merchants in other lines. Some few are indeed so admired, but alas! Geniuses in photography are few and far between; of expert photographers we have many. To the average patron — and as a class he is in the majority and has the most money — the good artisan's pictures are quite as satisfactory as would be the work of a Garo or a Stein. Like as not your average patron would bluntly remark on being shown a print by one of these masters: "Fine! But I don't see where he has got anything on John Jones!"— and there you are. All glory to John Jones; but why pose as an artist, when this kind of patron is in the majority and has the money to spend for your work? His demands are less exacting, but his coin is just as good on exchange.

It is rather hard to sacrifice professional delusions of this sort and get down to brass tacks. The photographer does not like to regard himself as merely a merchant, though it is liable to fatten his pocketbook to do so. After all, how many of us, as artists, will ever achieve the pinnacle to which we so nobly aspire? Real genius will show itself in spite of everything, but how readily fame evades those who consciously woo it. To be a good business-getter need not prevent any photographer from being a greater artist; to be neither is to fail. If photographers too often fail "to bring home the bacon" — to put it colloquially — it is largely because of their unwillingness to regard theirs as a merchandising proposition, and to go after the business by modern merchandising methods.

The photographer who regards his undertaking primarily as a business will be alert to discover those competing forces which curtail his sales and consequently his income. Of what does this competition with which he has to contend consist? First, there are other photographers, but they are perhaps the least of his worries. His chief competition comes, not from photographers, but from merchants in other lines. He has little to fear from Photographer Jones in the next block, or even across the street, but he and Jones together and every other photographer in that town might put their shoulders to the wheel to get a portion of the business that is going to the candy-dealer, the phonograph store, the jeweler, the milliner, the florist — in short, to the hundred and one merchants who are bidding for the public's money. Necessities we must have, but these hardly come under that heading, but represent refinements and luxuries which are no more necessary than photographs, but make an appeal for our surplus earnings. Here is competition indeed, and I ask you: Is it any wonder the photographer is asking what ails his business when he sits back complacently, waiting for something to turn up, while these more alert merchants are up and doing? Every magazine we open sings the praises of the phonograph, of silverware, of biscuits and bon-bons, singing the siren song that is ultimately going to bring many people into your own neighbor's store to spend money which might, with a little persuasive effort on your part, be spent for photographs in your store. While the local dealer is advertising in the

TOADSTOOLS
GEORGE O. STONE
Honorable Mention, December Competition

local paper, the manufacturer is doing his part in the national publications, and together they are wielding a mighty influence. In the meantime the photographer is interesting a few passers-by with his attractive showcase. A few photographers have notices in the local paper and there their sales effort ends. That is the resistance they oppose against the carefully wrought-out plans of a dozen other industries which clamor for the public's support. Not in every case, however. Some photographers have sized up the situation correctly and have realized that only a superhuman and concerted effort could accomplish much against such odds. They have got out into the world and made themselves and their work known to the public. They have reminded the public of what a precious thing a photograph is, which can arrest an impression and put it into immutable form to remain unchanged with passing time, in a world which knows nothing but change. Photography has a tremendous sentimental appeal, as we have observed in the Eastman series of notable advertisements featuring the "photographer in your town"— one of the first attempts, by the way, to pull the photographer out of the rut. These enterprising photographers are not asking what is the matter with photography, because they are putting some of that money which would otherwise have gone into bon-bons into their own pockets. They know where the trouble lies.

Why should the photographer face a dull season without plans or effort of any kind to overcome the condition while competing merchants are out turning up unexpected business? Some photographers there will be who will stand aloof and sneer at the man who "stoops" to such practices as soliciting business of people in their own homes. Why should he? Is a dollar honestly made any more to be despised because the photographer sought to press his claims upon a prospect and did not wait for the prospect to seek out his competitor, or change his mind? The grocer sends out his boy to call on his patrons every morning and thus keeps as close as possible to them. Isn't the photographer who advises his patron that he wants to serve him more likely to get the business than that important individual who sits, as it were, on a pedestal and says, "Come unto me all ye who would be served. I cannot come off my high horse"?

The fact is, photography, for most of those engaged in it, is a business before it is an art. The photographer is clamoring for a share of the public's expenditure along with the other merchants, and the public is not going to despise him for courting its patronage whatever the more conservative may say to the contrary. It is entirely probable that half the people do not know anything about the photographers in their town anyway or we should not so often hear the question: "Where's a good place to get your picture taken?" Ever heard that? If photographers were out after business instead of waiting for business to hunt them up, this question would be less frequently heard and the photographer might get people to think of photography oftener, to his pecuniary advantage. The photographer who sits with his feet on the stove wishing times were better may succeed in time, but not if his rival is out among folks stirring up business that would not have been created otherwise. There is nothing like going to the people. The coffee-man does it; the laundry-man does it; the milkman does it; the book-seller does it — to name but a few. Even the big department stores get their best customers on the telephone when some especially attractive prices are current. Why should not the progressive photographer avail himself of these creative methods of getting business? There is no reason why he should not, and I'll venture the assertion that the photographer who goes out after business will get it. He may encounter a sneering few who stand by the old régime and prate of the good old days; but the cobwebs soon find their way into their studios and the furniture gradually falls apart. With the cash jingling in his pockets, as the slang goes, "he should worry."

AN INTERESTING STORY
FRED E. CRUM
Second Prize, January Competition

CHEMICAL LORE FOR THE AMATEUR PHOTOGRAPHER

WM. R. FLINT

CHAPTER II

Chemical Reaction

One of the most general observations which can be made about the world in which we live is that nothing remains unchanged for any considerable period of time. The appearance of a landscape under bright sunshine is continually subject to change as the shadows shift with the altering position of the sun. The study of these variations in the same view forms a most useful exercise for the photographer who is interested in landscape work. Beneath a clouded sky the view presents a totally different aspect from any of these appearances. If we pass to a consideration of the sky on such a cloudy, gray day, we shall see that even the clouds are not uniform. There are lighter and darker grays. By fixing the attention upon a single patch of gray cloud we find that the quality of grayness is changing in both tone and texture.

Let us walk down beside the clear pool which, with its elliptical outline and its reflections, forms such an attractive feature in our imaginary landscape. Whether the air is still or whether a breeze ripples the water; whether we see in its mirror-like surface the clear blue of the sky or the rolling masses of a dazzling white thunderhead, surely, we may think, here is a body that is not changing. Water is water; the observed changes are external to the body itself and are only appearances. The physicist comes along with a little delicate apparatus and shows us that the vapor of water is continually rising from the surface of the pool. And more than this, by certain experimental and mathematical considerations he can also prove to us that water vapor is at the same time condensing from the air into the pool. Here then it seems is a different sort of change from the changes in the appearance of things of which we have been speaking. And yet it is only seemingly different because invisible to the eye. The physicist will tell us that all these changes are physical changes because the identity of the bodies concerned has not in any case been really affected. For example, whether water be liquid water or vapor of water, its identity is the same; only its condition has suffered a change.

Let us now go around the pool to the big tree on the other side. We know that its beautiful green leaves, which came out of the winter buds early in spring, will be changed into an autumn glory in the coming fall. But for the time being they are just green leaves, and cannot it be said that they are unchanged, temporarily at least? The answer now comes from the chemist. By the very simple device of putting a leaf into a tube full of water and standing it in sunlight, he can show that all the while the sun is shining upon it the leaf is busily engaged in consuming one of the constituents of the air, namely, carbon dioxide, retaining within itself the carbon with which to feed the rest of the plant, and breathing out the oxygen. That the bubble of gas collected at the top of the tube really is oxygen can be proved by bringing into it the end of a glowing splinter of wood, whereupon the spark will burn much brighter than in the air.

So from the chemist we learn that in this operation of the green leaf under the influence of light there are three bodies concerned. First, there is carbon dioxide, a colorless gas in which a glowing splinter is extinguished; second, oxygen, also a colorless gas, but a supporter of combustion; and third, the carbon. Dismissing the leaf from further consideration with the remark that it is able to assimilate this carbon in such a way as to store it up in the woody structure of the plant, we may note that carbon is ordinarily a black solid substance, quite different in every way from either of the other two. Stating the proposition again and in another form, we may say that it is possible to take the colorless gas, carbon dioxide,

JANUARY MORNING IN OREGON
A. J. STOVER
Honorable Mention, January Competition

and to get from it another colorless gas, oxygen, and black solid carbon. This would be plainly a different kind of change from the vaporization of liquid water into water vapor or the condensation of water vapor into liquid water, which as we have seen are physical changes because the identity of the water is unaffected. It is, indeed, a chemical change, for the identity of the carbon dioxide is lost, and two new bodies whose identity is different are obtained. Thus we may define as chemical changes all those changes by which the identity of the bodies concerned is altered.

By much patient investigation chemists have proved that all the many thousands of different kinds of bodies are various combinations made up from only about eighty really different kinds of matter. These eighty substances are known as the chemical elements, because none of them has so far ever been separated into anything simpler. When any two or more of the elements combine in such a manner as to form a definite substance, a chemical change occurs because there is a change of identity. This change is called a chemical reaction, or simply a reaction. Thus the chemical change already considered, that of the carbon dioxide into carbon and oxygen, is a reaction. It is possible to state reactions very simply in terms of the substances involved, and in the form of equations and for the sake of clearness, as well as for another reason which will presently be shown, it is very useful to do so. For example, we may write the reaction we have been discussing thus:

$$\text{Carbon dioxide} = \text{oxygen} + \text{carbon}$$

Now, in order to discover just how useful this way of writing reactions may be, and especially to learn what they really mean, let us perform and then consider a carefully conducted chemical experiment. In performing this experiment, keep the eyes and face away, just as though you were setting off flash powder.

Experiment 1. Upon a small piece of thin white porcelain place a very little powdered magnesium taken from a box of flashlight powder. Spread the magnesium out in a thin layer, and, supporting the porcelain suitably, cautiously apply heat to its lower side with an alcohol lamp or a gas burner, until all action ceases. Then remove the source of heat, let the porcelain cool, and examine the substance which it now holds.

If we have made any adequate use of our powers of observation, we shall have noted in the first place that the magnesium, which by the way is one of the elements, is a silvery white substance, noticeably light in weight, or, as we should rather put it, of low density, and metallic looking. In the second place, when it was heated sufficiently it began to melt; but in the third, before very much of it was able to fuse, it took fire and gave out a bright light together with a puff of white smoke. And finally, after cooling it, we have found upon the porcelain, in place of the original magnesium, a white powder which bears no resemblance at all to the material with which we started. What is it that has happened? Generally we shall find that restating such a proposition will help to make it clearer. We have taken the metallic element, magnesium, and added heat to it in the presence of the air; and have thereby obtained more heat, a bright light, and some white powder. This white powder, a chemical analysis would tell us, contains nothing but magnesium and oxygen, and the chemist therefore calls it magnesium oxide. No matter how many times we may repeat this experiment, we shall always find at its conclusion the same sort of residue, namely, magnesium oxide. And furthermore, if we had more experience and much more elaborate apparatus, we might weigh the magnesium beforehand and then, performing the experiment with very great care, weigh the magnesium oxide produced. If we were to do this a number of times with different amounts of magnesium, we should find that, allowing properly for what are called the experimental errors, the weights of magnesium oxide produced would all be in the same proportion to the weights of magnesium taken to start with,

and this ratio would be 40.32 of magnesium oxide to 16 of oxygen. In other words, when a definite weight of magnesium is heated in the air it takes from the air a definite weight of oxygen and forms a definite weight of magnesium oxide. So then we may write this reaction as an equation:

$$\underset{24.32}{\text{Magnesium}} + \underset{16}{\text{oxygen}} + \text{heat} = \underset{40.32}{\text{Magnesium oxide}} + \text{heat} + \text{light}$$

By using other elements and substances than magnesium and oxygen it is found that the same rule of definite parts by weight holds true for all, although of course the numerical ratios are different. Therefore by our experiment, together with the considerations just developed, it has been shown, first, that each definite chemical compound always consists of the same elements combined in the same proportions; and, second, that when two substances combine chemically they always combine according to definite proportions by weight. These are two fundamental chemical laws, the law of constancy of composition and the law of definite proportions, and they are of great importance because from these known ratios and proportions there can always easily be calculated, not only the percentage composition of substances, but also either the amounts of combining substances to use in order to get a particular quantity of the compound, or what quantity of a compound can be made from given amounts of its constituents. Thus, from our equation and the ratios given, the proportion of magnesium in magnesium oxide is 24.32/40.32; of oxygen is 16/40.32; and to make ten pounds of magnesium oxide will require the burning of 10 x 24.32/40.32 pounds of magnesium. We will next make an experiment by applying heat to a compound.

Experiment 2. Crush to a fine powder a few small crystals of silver nitrate, make a little pile of the powder upon a clean piece of thin white porcelain, and heat it carefully from below. Continue to heat until all fuming has ceased and the residue is bright and silvery. Cool and examine this residue.

Here we start with a white powder and by heating it convert it to a bright metal, evidently silver. In the course of the heating brown fumes are given off, the material is hot simply on account of the heat we are applying to it, and no light is given out. So this reaction appears to be in every way the reverse of that in the first experiment. Before we can write out an equation it is necessary to know positively whether the silver residue and the brown smoke, which is an oxide of nitrogen, are the only products of the reaction. By putting a little silver nitrate in the bottom of a glass tube, closed at one end and open at the other, and heating it, and presently applying a glowing splinter of wood at the tube's mouth, we can show that oxygen is also given off. Finally, by carefully preparing pure silver nitrate in the first place and weighing it and then weighing the residue of silver, we should find that, just as there is a definite ratio between magnesium and magnesium oxide, so there is a fixed proportion by weight between the silver and the silver nitrate from which it came. This ratio is 169.89 silver nitrate to 107.88 silver. We are now in position to write the reaction in the form of an equation if we add that it can be shown by suitable means that fixed proportions of oxygen and of nitrogen oxide are also produced.

$$\underset{169.89}{\text{Silver nitrate}} + \text{heat} = \underset{107.88}{\text{silver}} + \text{oxygen} + \text{nitrogen oxide}$$

Leaving the further comparison of this reaction with that of Experiment 1 for our later consideration, we will pass at once to two others.

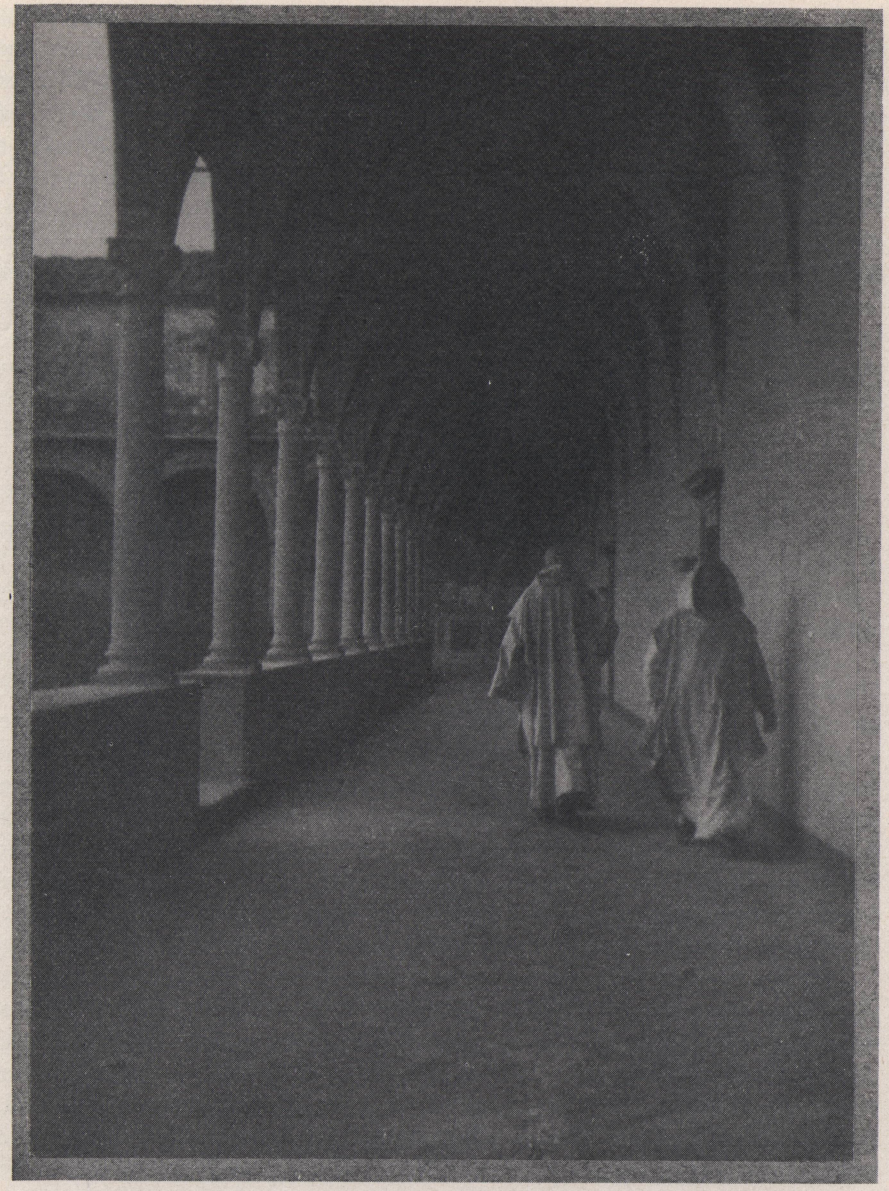
Experiment 3. Measure in a test-tube with a small glass graduate 5 cubic centimeters of water. Weigh out upon the balance 0.1 gram of silver nitrate and dissolve it in the water. In a similar manner make another solution in a test-tube of 0.3 gram of sodium

chloride (common salt) in 10 cubic centimeters of water. Warm the silver nitrate solution, add to it a little of the sodium chloride solution, and shake the tube containing the mixture. Add more of the sodium chloride and shake, and continue thus until it is seen that no more white solid forms upon the addition of a drop or two of sodium chloride solution. If the experiment has been carefully done, the white solid, or "precipitate" as it is called, will collect in little bunches and settle quickly to the bottom of the tube. If not, shake vigorously and then let the tube stand until all the solid has settled, which should take only a few minutes. Now, remembering that a little of the sodium chloride was added after the white powder ceased to separate from the silver nitrate solution, consider how to free the solid substance from this sodium chloride and any other substance that may be in solution in the water. Suppose that, taking care to disturb as little as possible the solid in the bottom of the tube, we pour off from it all of the liquid we can, and then put 10 cubic centimeters more of fresh water into the tube. Shake the tube, let the powder settle again, and then pour away the water. By repeating this process sufficiently, which is called "washing by decantation," it is clear that each time we shall leave in the tube only a portion of whatever substances may be in solution, and thus may reduce the amount of them to as small a quantity as we please.

We may test the efficiency of this washing process as follows: Dissolve in 4 or 5 cubic centimeters of water contained in a test-tube a small crystal of silver nitrate. Into another clean test-tube pour the wash water from the tube containing the original precipitate. Now add to this wash water a few drops only of the new silver nitrate solution. If the wash water still contains an appreciable amount of sodium chloride, a white cloudiness will appear, just as the white precipitate was formed in the first instance. As soon as a portion of wash water shows no perceptible change upon testing with silver nitrate in this way, we may consider the precipitate thoroughly washed.

(NOTE.—It should be remarked here that other soluble chlorides besides the chloride of sodium will also form this white precipitate in a solution of silver nitrate. Since in some localities the natural waters contain appreciable amounts of chlorides in solution, the addition to them of silver nitrate will produce a cloudiness as above described. Thus with such waters it will be impossible thoroughly to wash the precipitate. In these cases distilled water should be employed.)

In performing this experiment we shall have observed that in the case of both substances the solid readily dissolved in the water without any other perceptible change; but that a change occurred as soon as the two solutions were mixed; and lastly that after a certain point the addition of sodium chloride failed to show any further change. It might be supposed that the sodium chloride caused the silver nitrate to come out of the solution as silver nitrate, or, vice versa, that the sodium chloride was forced out, in which cases the change might be a physical change. But investigation of the white precipitate would show that whereas it contains silver it contains also chlorine; and that it contains nothing besides these two elements. It is thus silver chloride, and therefore the formation of the white precipitate indicated a chemical change. We must next consider what has become of the sodium from the sodium chloride and the nitrate part of the original silver nitrate. If we have in the first instance added but a drop or two more of sodium chloride after the silver chloride stopped precipitating, we could take the solution decanted from this precipitate and boil it down carefully to small bulk in a little dish and set it at one side for a day or so. We should then find that a white solid substance had crystallized out and examination, perhaps with a magnifier, would show that the crystals have a different shape from either sodium chloride or silver nitrate crystals. Also by conducting the experiment quantitatively,



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adding to a known amount of silver nitrate a definite quantity of sodium chloride in excess, and weighing the silver chloride precipitated, it can easily be proved that besides the silver chloride the only other new substance formed is sodium nitrate. Therefore it should be noted that we have also indicated by the experiment that when silver chloride is formed by interaction of silver nitrate and sodium chloride, exactly the right amount of sodium is involved to form sodium nitrate with the nitrate from the silver compound. There is neither nitrate nor sodium left over, so to speak. Looking at the matter in this way we may see that any definite quantity of silver nitrate is perfectly matched by some other definite quantity of sodium chloride, because, while there is just enough and no more silver in the one to combine with all the chloride in the other, and form silver chloride, at the same time there are exactly suitable amounts present of sodium and nitrate to form sodium nitrate and have nothing left over. Such amounts of two interacting substances are called equivalent amounts, or simply equivalents. We are now able to write the reaction as an equation.

Silver nitrate	+	sodium chloride	=	silver chloride	+	sodium nitrate
169.89		58.46		143.34		85.01

And to keep the matter fresh in our minds we will note again that by using the proportions of these numbers, which we now will call the equivalents of the substances, it is possible to calculate from a given weight of any one of the compounds the corresponding weights of all the others.

Experiment 4. Dilute with water a few cubic centimeters of strong hydrochloric acid (muriatic acid) to 25 cubic centimeters, mix thoroughly, and put 20 cubic centimeters of the solution into a small porcelain dish, saving the remainder, 5 cubic centimeters, in a test-tube. To 5 cubic centimeters of water contained in another test-tube add two or three drops of strong ammonium hydroxide (ammonia water) and mix by shaking. Dip into the smaller portion of diluted hydrochloric acid one end of a strip of red litmus paper, and similarly a strip of blue litmus paper, and observe the effects. In the same way try the action of the diluted ammonium hydroxide upon red and upon blue litmus, and compare these effects with the former. Evidently the litmus can be used to indicate the presence of these substances in solution, and for this reason it is called an "indicator."

To the bulk of the hydrochloric acid solution in the dish add cautiously strong ammonium hydroxide, little by little, stirring after each addition to mix the liquids. Continue this operation until the mixture smells very faintly of ammonia. Try the effect of the solution now upon red litmus, and consider what has happened to the hydrochloric acid in the operation. Leaving the strip of litmus paper in the liquid, cautiously add, a drop or two at a time, some of the diluted hydrochloric acid from the test-tube until, upon thorough stirring, the litmus just turns blue. Then add with still greater care a very little diluted ammonium hydroxide, continuing thus with one or the other of these dilute solutions until, if possible, red litmus remains red and blue remains blue, or at any rate the color change is very slow. After the removal of all strips of paper, the dish is to be set over a burner in such a way that all the water may be evaporated slowly, the dish at no time being permitted to become hotter than the boiling temperature. Examine the dish for any residue. Boil away a little of each of the dilute solutions separately and see whether any residue is left in either case.

(NOTE.—If, after all the water has been evaporated, the dish is heated much above the boiling temperature, the experiment will probably be spoiled, since the residue also will be expelled. It is quite likely that both the liquid and the residue may be slightly colored from the litmus, if the strips of paper have been allowed to soak in the dish for any length

of time. Keep the litmus out of the solution as much as possible, and the residue will be nearly, if not quite, white at the end of the experiment.)

Remarking that "hydrochloric acid" as supplied is merely a solution of hydrogen chloride in water, and that ammonium hydroxide is likewise a solution of ammonia, both these compounds being gaseous, we may, if we look at the equation which represents the reaction of Experiment 3, perhaps at once venture to write an equation for this reaction, as follows:

Ammonium hydroxide + hydrogen chloride = ammonium chloride + hydrogen hydroxide

The white residue is therefore ammonium chloride, since hydrogen hydroxide is only a chemical name for water. This reaction is a very remarkable one, in spite of its apparent simplicity. Two clear, colorless liquids, neither one of which upon evaporation leaves any residue, the one smelling strongly of ammonia and the other producing a pungent stinging sensation in the nostrils, when suitably mixed form a solution which has practically no odor at all, from which a white solid substance is obtained by evaporating the water. It is also to be noted that the two substances, ammonium hydroxide and hydrogen chloride, interact spontaneously and without the intervention of heat, just as did the silver nitrate and sodium chloride of the preceding experiment; that heat is developed by reaction, as could be shown by using stronger solutions of the substances; and, as in the foregoing experiments, that if the quantities of interacting substances and products were measured they would be found in definite proportions to each other. So we will write the equation again in the following form:

Ammonium hydroxide	+	hydrogen chloride	=	ammonium chloride	+	water	+	heat
35.05		36.48		53.502		18.016		

Since, as we have seen, the two odors mutually destroy each other it is but a step to the inference that the ammonium hydroxide and hydrochloric acid have neutralized each other. Indeed, there is a whole series of substances that possess, like the acid, a sharp, sour taste when sufficiently dilute, are generally powerful, corrosive liquids in concentrated form, and have certain other important properties in common. And there is another series, like the ammonium hydroxide, possessing in dilute solution a soapy taste, generally solids forming more or less caustic solutions. And the members of the first series interact with those of the second series in the same way as the hydrochloric acid and ammonium hydroxide. The first are called acids and the second, bases. The process of their interaction, which is always accompanied by the development of heat, is called neutralization, and the principal product is a "salt" in each case, the other product always being water. So when a given solution contains an excess of acid, or free acid as it is called, if the excess is undesirable it may be readily destroyed by the addition of a sufficient amount of a base, or vice versa. Ammonium hydroxide is often used for getting rid of an excess of acid because it is itself volatile, and if an excess of alkali is also not wanted it can be expelled by heating.

In these four experiments we have learned that elements will sometimes unite to form compounds if sufficient heat energy be supplied to them; that compounds may be caused by heat to break apart into the elements of which they consist; and that often when chemical reactions occur there is a development of heat, and sometimes even of light. Sometimes, as in the decomposition of silver nitrate in the second experiment, the reaction does not yield heat, but on the other hand heat disappears, being used up in the progress of the reaction. Thus every chemical reaction is accompanied by an energy change of some sort. Even when, as in the neutralization of a base by an acid, the reaction starts spontaneously, that there is actually a change in the energy conditions is proved by the appearance of heat when the base and acid are mixed. This fact of a relation between energy and

chemical reaction is of the greatest importance in very many ways which need not here be discussed. But in the chemistry of photography it is vital, for it is the reaction produced in the photographic emulsion by the energy of light which makes photography possible.

By a comparison of the experiments we may also learn that there are several different types of reactions. When two or more elements or substances are caused to combine, as in the burning of magnesium with oxygen to magnesium oxide, the elements are put together, and the reaction is thus a reaction of synthesis. On the other hand, it is possible, as in the second experiment, to cause compounds to be broken up into their constituents, and then we have reactions of analysis. It is the use of this kind of reaction, whereby the composition of substances is investigated and their percentage composition determined which constitutes that branch of chemical science known as analytical chemistry. In such reactions as that between silver nitrate and sodium chloride and between hydrochloric acid and ammonium hydroxide we appear to have compounds picked apart and put together again in a different order. These reactions, in which there is a change of partners so to speak, are reactions of metathesis. But there are still other ways in which reactions may be classified, for example, we have already shown that in Experiment 4 the process of neutralization is illustrated. When the dry substances are mixed together and reaction is brought about either without or with the aid of heat it is sometimes said that the substances react in "the dry way," and the reaction may be said to take place "in the wet way" when it occurs between substances that are in solution. The most important kinds of reaction for our discussion, however, are typified in the first two experiments, since it is by means of such reactions as these that the initial work of light upon the photographic plate or film is afterward made effective in the negative (or print) and the result finally modified to suit the requirements of the photographer.

When, as in Experiment 1, oxygen is caused to combine with a substance that substance is said to be oxidized, and the reaction is called oxidation. The oxygen may come, as in the experiment from the supply of free oxygen gas in the air, or it may be taken from (or given up by it, whichever way we choose to look at it) some other compound, generally one that is rich in oxygen. The substance which furnishes the oxygen is called an oxidizing agent or simply an oxidizer. If we now consider what has happened to the oxidizer, namely that oxygen has been taken away from it, we shall see that this is precisely what has occurred in heating the silver nitrate, viz., oxygen has been removed. This is evidently the reverse process to oxidation, and it is called reduction. The substance, as for instance silver nitrate, from which oxygen is taken is said to be reduced; and that which takes the oxygen is called a reducer. It may now be remarked that a reduction cannot occur without an accompanying and equivalent oxidation, and vice versa. The substance which is oxidized need not be an element, it may even already be an oxide. As an example, there is an oxide of lead, litharge, which is capable of being oxidized, forming another oxide of lead, richer in oxygen, lead dioxide, or, as it is sometimes called, lead peroxide. This lead peroxide is a strong oxidizing agent, readily giving up again exactly the amount of oxygen which was required to change it from litharge to peroxide. After the peroxide has been reduced to litharge, the latter can be further reduced to metallic lead, by using still more powerful reducers. Reduction, therefore, may also be conducted in steps, a higher oxide being reduced to a lower, and the lower completely reduced, as to a metal. By an extension of these principles, chemical changes in which no oxygen at all is involved are denominated oxidation and reduction. As an example may be cited the action of a piece of iron, such as a nail, on a boiling solution of the chloride of iron which is called ferric chloride. The solution is originally yellow in color, but the boiling over metallic iron bleaches out the

yellow and makes the solution colorless. At the same time a little of the metallic iron is dissolved. By suitable analytical tests it can be shown that the solution now contains chloride of iron and nothing else, but the iron chloride is a different one from the original. If it were taken out of the solution it would be found to be a white powder, whereas the ferric chloride is yellow. The one compound is ferrous chloride and it is made from the ferric compound by reduction, iron being the reducing agent. It will perhaps be clear at once that the iron metal, from the nail, which goes into solution in the process is oxidized, so that the quantity of ferrous chloride finally present comes not only from the reduction of ferric chloride to ferrous chloride but partly also from the oxidation of iron to ferrous chloride. Ferrous chloride can finally be oxidized back to ferric chloride by passing chlorine gas into the solution. Thus in these oxidations and reductions we have nothing whatever to do with the element oxygen, but have learned that chlorine is an effective oxidizing agent, and that reduction may involve the removal of other elements than oxygen.

(NOTE.—For a more complete account of this subject the reader is referred to any of the standard works on chemistry. It will be, in fact, an excellent idea if he will extend his reading in these chemistries to cover such subjects as valency, the ionic theory, and molecular and atomic weights, which are not within the scope of the present work.)

(To be continued)

"COOKIE" HEARS THE NEWS — W. R. BRADFORD

Honorable Mention, December Competition

PHOTOGRAPHIC PORTRAITURE

PAUL L. ANDERSON

CHAPTER IV

Exposure and Development

IF successive portions of a plate be given progressively increasing exposures to a standard light and the plate be developed in a standard developer, the opacities of the different portions being subsequently measured by means of a photometer, a curve similar to the following may be plotted, light-action being measured along the axis of abscissæ and opacity along the axis of ordinates. This curve is constant in type for all plates and all forms of development, varying only in dimensions. It will be seen that the curve has four distinct characters, one in which opacity increases relatively more rapidly than light-action, one in which the two increase at the same relative rate, one in which opacity increases relatively less rapidly than light-action, and one in which opacity decreases as light-action increases. The first corresponds to under-, the second to normal, the third to over-exposure, and the fourth to reversal, in which the plate develops to a positive instead of to a negative, the last named being of laboratory interest only.

From a consideration of this curve certain facts may be deduced concerning the effects of normal, under-, and over-exposure, and it should be noted that the term "normal" is used instead of "correct," for correct exposure is that which gives the effect desired, and less or more than normal exposure may be wanted for pictorial reasons. Normal exposure will give a reproduction of the values of the original in their correct relative relationship, though the actual contrast may be extended or compressed by development. Underexposure will give the lights — which have nearer normal exposure — in approximately correct relationship with the lighter halftones, but they will be much stronger compared to the lower halftones than should be the case, while the shadows will be flat and lacking in detail. It will be seen from this that underexposure should be employed when it is desired to suppress the shadow detail and emphasize the lights. Overexposure will flatten the lights, that is, will make the lighter portions less strong relatively to the lower tones than would be the case with normal exposure, and should therefore be used when the emphasis is to be on the shadow values or detail. Overexposure is also useful when a soft negative is desired, from which to get a high-keyed, or, less frequently, a low-keyed print. As a corollary to this, it may be said that underexposure emphasizes wrinkles, whereas overexposure minimizes them.

Under- and over-development operate differently, as will be understood when it is realized that modifications in development are, for all practical purposes, unable to alter the internal relationship of the values. That is, prolonged development will give greater total contrast, so that the negative will give a stronger print, but it cannot alter the effect of under- or over-exposure, and a similar conclusion is reached concerning brief development. However, unduly short development may cause the negative to resemble an underexposed one, by leaving the shadows undeveloped, though careful examination will reveal the difference. There is an apparent contradiction of the law induced from the characteristic curve in the fact that using a dilute developer tends to make the lights develop relatively less rapidly than would otherwise be the case, since a dilute solution, after penetrating to a certain depth in the film, becomes exhausted and must be got out of the film and replaced by fresh in order that the reducing action may continue deep within the film, where lie the highlights, whereas a strong developer does not become exhausted so soon, but continues developing the lights at the same time that it is acting on the shadows

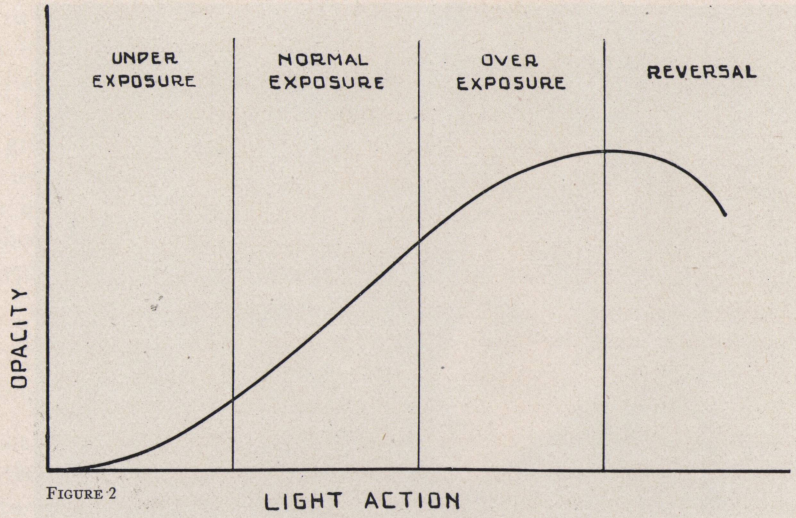


FIGURE 2

and halftones, which lie on or near the surface. Hence it follows that the use of a dilute developer, provided its action is arrested before all the light-affected silver has been reduced to the metallic state, results in bending the curve down, thus causing an underexposed negative to approximate more closely to the effect of a normal exposure, and causing a normal exposure to approach overexposure in printing quality.

There are three forms of development which may be used; by inspection, factorial, and by time, and the advantages of each will be briefly indicated. In development by inspection the plate is immersed in a tray of developer and rocked until, on examining the negative by transmitted light, it appears to have attained sufficient contrast. The sole advantage of this method is that it permits a number of plates to be developed to different degrees of contrast, and this advantage shows only in comparison with tank development, since with time development in a tray or with factorial development the same result may easily be attained. One advantage often claimed for development by inspection is that the worker enjoys watching the plate develop. Of course, if darkroom processes are considered a form of recreation, this is a strong argument, but those individuals who, like myself, regard the negative merely as a means to an end — the print — will not find it very convincing. It is often said by the advocates of inspection that it permits the use of judgment and the introduction of individuality, but a moment's thought will make it clear that just as much judgment and individuality may be employed in determining beforehand the time of development as in estimating it by examination of the negative. Further, it is not only possible but also easy to develop a dozen plates simultaneously in a tank, and, simply by selection of subject and exposure, to produce results differing as widely as though development had been by inspection. (See Figs. 3 and 4.) In factorial development the plate is immersed in the tray of developer and the time elapsing between the first immersion and the first appearance of the image is noted. The tray is then covered with an opaque card and rocked until the total time for development has elapsed, this time being determined by multiplying the time of appearance by the factor of the developer, this factor depending on the reducing agent employed. The advantages of this method are that it is convenient and that it avoids repeated exposure of the plate to the darkroom light, with consequent danger of fog, the disadvantages being that it prolongs development of an underexposure and shortens that of an overexposure, this being the reverse of the proper

FIGURE 3

treatment, unless it is intended to employ selective reduction or intensification. In time development the plate is immersed in the developer, either in a tray or in a tank, protected from light, and developed for a predetermined time, this time depending on the composition and temperature of the developer, on the plate in use, and on the character of result desired. This method insures against fog, and permits the use of panchromatic plates, which, owing partly to their color-sensitiveness and partly to the backing, are not easily handled by any light. If the tray is used, individual plates may be developed to different degrees of contrast as readily as by the inspection method, but this cannot be done in the tank, although, as stated above, I do not feel this loss of control to be of any consequence. The advantages of the tank are that a number of plates may be developed in much less time than with the tray, with absolute safety from fog and from scratches; that it is more

economical than tray development; that it avoids the necessity for spending much time in the darkroom, with its consequent lowering of vitality (this lowering is a physiological effect of darkness or semi-darkness, and may amount to two or three per cent in an hour), and that, consisting as it does of prolonged development in a dilute solution, it gives, in general, more delicate gradations than the more abrupt tray method will render.

In short, I cannot too strongly recommend that the photographer adopt tank development for all his plates and depend on variations in choice of subject, exposure, and, if necessary, printing method, for different effects, as it must not be understood that I am advocating any stereotyping of results, such a mechanical style of work being especially undesirable.

CHAPTER V

Composition — Detail — Values — Atmosphere Composition

Since a good portrait should be pleasing, by reason of its art value, to one who is not acquainted with the sitter, composition is as necessary in portraiture as in any other form of art. Composition means simply that every line or spot has a certain power of attracting the eye by reason of its direction, its value (of light or dark), and its relation to other lines and spots, so that if the lines and masses are properly arranged the eye is led in due progression over every part of the picture space, resting longest on the principal center of interest, which in a portrait is usually, but not always, the face. There are many fundamental forms of composition, depending on the geometric shape which the lines and spots, not only of the principal figure, but also of the accessories, assume or suggest; but probably the one most used in portraiture is the triangular, in which the center of interest is at or near the apex of the triangle, the base forming the line of support. This shape suggests great solidity and strength — for each type of shape or line has a subjective power of suggestion, based on daily association — and for this reason is most useful for portraits of men, but is also valuable with such women as have notable strength of character. The oval is often found — since the face has naturally this shape — either alone or in combination with some other form, in which the face may constitute the oval and the accessories the triangle. In seated figures the rectangle is frequently seen, this demanding an attraction of some sort within the rectangle, which attraction may be furnished by a picture on the wall, a piece of bric-à-brac, or some other accessory, perhaps even the face of a second person. This form would also prove satisfactory if the sitter's face were the attraction within the rectangle, the rectangle itself being formed by the accessories, the body being subdued in value, when the fundamental forms would arrange themselves as in the following figure.

As suggested, two or more of the fundamental shapes may be combined, and there is not always a sharp dividing line, as one may merge into the other. For instance, if Fig. 5 were arranged as in Fig. 8 it might be difficult to say whether the composition were rectangular or triangular.

In addition to this, the different types of line have very definite effect, the suggestion afforded by the vertical line being one of strength and dignity, and that of the horizontal rest and quiet, while the sinuous line suggests grace and the diagonal movement and restlessness. One or more of these lines may be combined with the various compositional shapes as shown in Fig. 9, or one line may counter another line or a form as in Fig. 10, where the horizontal line serves to balance the figure, which would otherwise be lopsided.

It will be apparent that draperies, such as gowns, furs, overcoats, etc., may be valuable aids to composition, and it may be stated as a safe general rule that the portrait should

not be of what has been designated as the "walk in and back out" type, where a head, bust, or full figure is arbitrarily set against a blank background, either black, white, or of a middle value, this being, like vignetting, an evasion of composition, the principal exception to this rule being in the case of miniatures, which may reasonably be in this style.

It is by no means suggested that these are the only shapes, or combinations of shapes, which can be used, for the possible arrangements are almost infinite, and it is recommended that the student procure a copy of "Pictorial Composition," by Henry R. Poore, and study it until thoroughly familiar with the principles therein enunciated, for constructive or selective arrangement should be absolutely subconscious, and not at all the result of conscious thought, or the effect is almost sure to be strained and forced. The book mentioned is, in my opinion, quite the best work in existence on this subject, since the writer deals with fundamental principles, using examples merely for purposes of illustration, and writes very clearly and concisely, besides treating the subject from the analytic rather than the synthetic point of view, this being, of course, the manner in which photographers work, since their function is mainly to recognize and reproduce good arrangements when such are presented to them. The use of the book should be supplemented by the study of portraits by the great masters, making rough charcoal sketches of the major outlines and values. In the last analysis, however, composition must originate within the artist, and though a sensitiveness to arrangement may be cultivated, it is impossible to work by rule.

Detail and Definition

The amount of detail to be included in a portrait is more or less a matter of debate, for different workers hold widely diverse opinions on this subject; but we can at least say that one should include all the detail, whether in the subject or in the form of accessories, that helps in giving a characteristic representation of the sitter, and that any more than this is harmful, in that it distracts attention from the center of interest. This statement may seem like an evasion, a begging of the question, but such is not the case, for on examination it will be found that the average professional includes far too much detail, usually in the form of hair and cloth textures, whereas the devotees of the soft-focus lens generally lose much of the sitter's character through obliterating character lines and planes. I am not, as a rule, an advocate of half measures; on the contrary, I incline to extreme opinions, but in this instance I feel it safe to say, with the old Roman, "*medio tutissimus ibis,*" and I do not feel that either sharp definition or the reverse is necessarily right, but that the worker must use his judgment in each case, for the quality of definition most suitable varies with different individuals. In general, we can say that definition should be fairly accurate with children, old persons, and men of strong character, whereas a certain amount of diffusion is advised with women from sixteen to fifty years of age, and with men of an imaginative type. Character lines should be preserved, but it is not necessary to show all wrinkles, and this is about as near as I can come to any exact information on the subject, though I may say that I use a rectilinear, a single landscape, or a soft-focus lens, depending on the effect desired, and print on smooth or rough platinum or on a similar texture of carbon paper. It will, of course, be apparent that a greater amount of diffusion is permissible if the portrait is on a large scale than in the reverse case.

Detail may be obscured in various ways other than the softening of definition in making the negative, such as diffusing in printing or enlarging, underexposing or multiple printing — the latter two affect the shadows only — overexposing or overdeveloping, or using handwork on either negative or print. It should be observed that overdeveloping, by extending the scale of the negative beyond that of the printing paper, obscures detail

FIGURE 4

in either the lights or the shadows, depending on whether printing is light or heavy. Overexposure tends to minimize detail in the lights by reducing contrast in them. Naturally, some of these methods may be used in conjunction with others, and it is important that the photographer be sufficiently familiar with the effect of each to command it at will.

Values and Atmosphere

The correct rendition of values is necessary if we desire an accurate representation of the sitter, but since we practically always want a characterization rather than a representation, it is often desirable to falsify the values, since art depends more on suggestion than on delineation. It will usually be found desirable to employ a high key for children, for two reasons: first, that a child is generally dressed in white and has warm coloring — the psychic effect of warm colors being lighter than that of cold; and, second, that a child, being vivacious and full of energy, suggests brightness. Men of strong character will demand a full scale, for this suggests strength, whereas women may require either high, low, or medium key or full scale, since they vary more in style and in dress than is the case with men. For men of an imaginative type — poets, artists, actors, and such — a full scale is not, as a rule, best, partly because these men are frequently not of strong character, and partly because a compressed scale suggests unconventionality, which is often — in fact, generally — characteristic of such individuals.

The ordinary feeling with regard to a portrait is that it should "stand out," that is, have rotundity and appear, so far as is possible in dealing with a flat surface, to come forward, but Whistler said that it should rather "stand in," or be held within the frame. As is often the case, both dicta are partly right, for a good portrait should carry the illusion of three dimensions, and at the same time the figure should be no more than an integral part of the picture, being tied to the frame, or to the edges of the print, by lines either suggested or shown. It is very desirable that there be a feeling of space behind the figure, suggesting that it is set some distance from the background; for flat, poster-like work is, in general, out of place in portraiture, its greatest value being in abstract art, and it may be mentioned, in passing, that flattening the planes is one of the most serious faults of the soft-focus lens, requiring careful use for its avoidance. As a rule, the face should come farther forward than any other large area of the print — though this is by no means invariably the case — and it may often be set somewhat back by the juxtaposition of a small spot somewhat higher in key, such as a white collar. The dictum so often heard, that "the face should never be the lightest spot in a portrait," is not thoroughly sound, though it has a certain basis of truth, for if the face is made higher in key than any other area, it is very apt to jump, or come too far forward. However, lowering the value of the face and making some other portion lighter is only one way of avoiding this undesirable effect, and other methods are to keep the background near the face in value, or to tie the face to the frame by an arrangement of spots or lines. Aerial perspective, that is, the feeling of space behind the figure, may be secured in numerous ways, such as the use of accessories, or what is equivalent thereto, gradation, in the background; by rendering the planes in their correct values in combination with a lighting that gives rotundity; by allowing the shadow side of the figure to melt into the background, and by means of the "lost and found" outline. The last-named is extremely valuable, and means simply that the outline changes in value while the background does the same, the values approaching and receding from each other at intervals, so that the outline now appears and now disappears. Great breadth and vigor result from using a graded background and setting the dark side of the figure against the darker portion of the background, whereas the common practice of

THE SPREADING WILLOW
R. S. KAUFFMAN

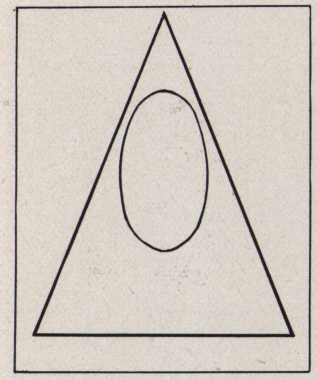


FIG. 5

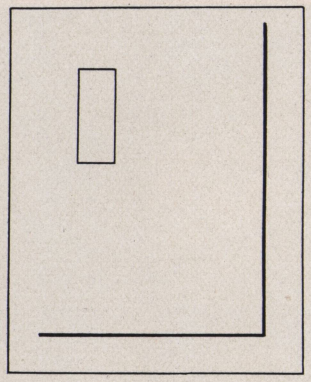


FIG. 6

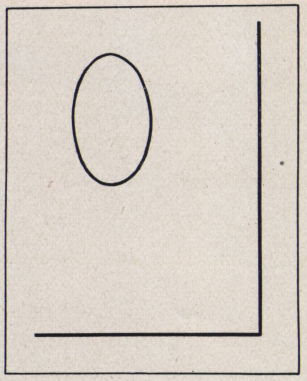


FIG. 7

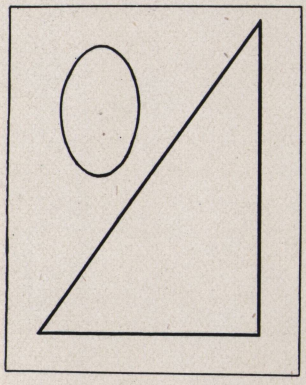


FIG. 8

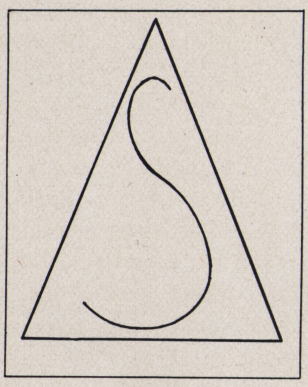


FIG. 9

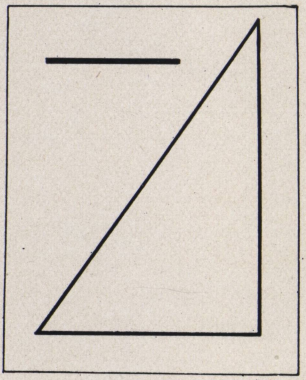


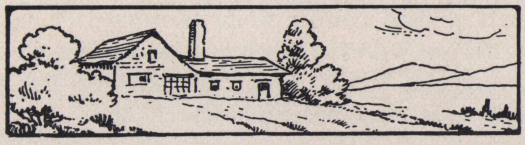
FIG. 10

relieving the dark side against a light ground and the light side against dark gives a harsh and meretricious relief. It will be found exceedingly difficult to produce the illusion of space if a flat background is used, and practically the only way to accomplish this result is to keep the values of the figure, especially the outlines, close to those of the background, at the same time giving some diffusion to the outlines by means of a soft-focus lens.

The photographer should always remember that one of the great powers of photography is its ability to render the most delicate gradations, and that to employ technical methods which result in the loss of some of these gradations is to throw away one element of appeal, so these methods should never be used unless it is very certain that the resulting gain is sufficient to compensate the loss. He should also bear in mind that the good portraitist will show as much restraint as the good accompanist, so he may be sure that if people looking at his work say, "What a fine picture!" rather than, "What a fine portrait!" the portraitist has exploited himself at the expense of the sitter.

In studying the works of the masters, the photographer will often find, especially in those of D. O. Hill, contraventions of various propositions that are frequently stated by writers on this topic. It must be borne in mind that rules are only for the mediocre — or rather that only mediocrity demands rules — and that freedom of thought is the most important qualification for the artist, and for this reason I have endeavored throughout this series of articles to stimulate the reader to think for himself, rather than to lay down any set rules. As regards Hill, if ever a man worked without thought of anything except what seemed to him good, Hill was so inspired, and the landscape, genre, and portrait work of to-day would be far better than it is if that spirit animated more of our present artists.

(To be continued)



EDITORIAL

OUR COMPETITION

HE first prize in our January competition has been awarded to one who has frequently received prizes in our competitions in the past, H. Berssenbrugge, of Rotterdam, Holland. This is an excellently composed group, and the original print is a most masterly piece of fine technical work, reproducing the texture of the costly fabrics in a most remarkable way. The picture is an excellent study of values and contrasts. The picture was taken with an 18 x 24 cm. Ernemann camera, fitted with a 28 cm. Cooke anastigmat lens. The exposure was 4 seconds at stop *f*: 6.8, at 11 A. M. in June with diffused light. The Barnet ortho plate was developed with pyro-soda, and the print is on platinum sepia. The second prize goes to F. E. Crum, for "An Interesting Story." Here again we have a group, and a contrast of darks and lights. The subjects of this group would naturally be much harder to handle, but the result is successful, though we would prefer to see the heads arranged more nearly in the form of a rectangle. The mother's head should be a little higher, or the child on the right standing so that his head would come somewhat lower. This picture was taken at 2 P. M. in February, with bright sunshine. The exposure was 1-5 second at stop *f*: 8; R. R. convertible lens of 10½ inches' focal length. The Seed gilt edge plate was developed in pyro, and the print is on Noko Buff, hypo alum toned. The third prize was awarded to Dr. F. F. Sornberger, another frequent prize winner, for a very pleasing landscape with figure, entitled "On a Trout Brook." Here we not only have a beautiful landscape, adequately rendered, but the human interest is added in a most successful way. Taken with a 5 x 7 Century camera fitted with Goerz Dagor, rear lens only, focus 14 inches. The exposure was ½ second at 3 P. M. on a sunny day in May; stop *f*: 16. The Standard Orthonon plate was developed in rodinol, and the print is on Seltona antique cream.

The following pictures received honorable mention: "The Old Castle and Bridge," Arthur Van W. Eltinge; "Self Portrait," Kenneth McFarland; "Foreign Views," P. Jarry; "The Old Fairleigh Home," Ernest F. Cook; "Miss Vanity," Arthur Hartman; "Just a Song at Twilight," Maud Oldham; "A Peaceful Pathway," Arthur E. Holmes; "A Japanese Village," Fritz C. Müller; "The Fast Train," Ancel C. Battley; "Balloon Ascension," John H. Brown; "Portrait," Halsey Bezley; "The Last Drop," Franklin I. Jordan; "Still Waters," Elliott Hughes Wendell; "Il Penseroso," Alice Willis; "Outdoor Portrait," J. H. Field; "Summer Landscape," J. W. Schuler; "The Orchard in Winter," Lawrence Baker; "Sighted," John N. Harris; "Dragon Cedar," Sotaro Saba; "Have a Drink?" Frank H. Oller; "A Country Bridge," Charles E. Tracy; "The State House," Vincent Driscoll; "Sunset Starts the Cattle Homeward," William J. Wilson; "Figure Study," Jared Gardner; "Mother and Child," G. A. Lembcke; "I Don't Believe It," W. R. Bradford.

FLASHLIGHT DANGERS

ON January 10 the newspapers contained one of those periodical dispatches which are so likely to appear when some inexperienced person endeavors to compound flash powder.

A professional photographer named Mills gave to his daughter and a young man caller the task of making ten pounds of flash powder while he worked in his studio a short distance from the house. What happened is not likely to be known, for before the mixing was completed an explosion occurred which completely wrecked the house, and so severely injured its three occupants that they will probably all die.

Accidents of this nature have been so frequent in the past that they amply justify the rule of this magazine to publish no formulas for flash powder. The mixture of ingredients of a high explosive in a dry state, no matter how carefully accomplished, is likely to create a spark from frictional electricity, or contact of hard substances, with a consequent disastrous explosion. Flash powder once mixed is safer than during the mixing, and provided ordinary care is used, and the makers' instructions followed, there is little danger in using ordinary quantities of prepared flash powders. The use of powdered magnesium or aluminum in a blow-through lamp or the burning of flash sheets are safer processes.

A DEVELOPER SHORTAGE IN GERMANY

According to a note in the issue of *Apollo* for December 22, 1915, serious shortages of developers, as well as other photographic chemicals, are now apparent in Germany. The firm of Hauff has notified its customers that metol and adurol can only be supplied hereafter to customers who will obligate themselves "to use these developers only to fill orders from military authorities or for development for military purposes." This is another symptom both of the approaching exhaustion of old stocks of nitrogenous materials in Germany, and of the almost complete diversion of chemical manufacture in Germany from its ordinary ends to the production of explosives. For the period of the war, and for sometime after, even if German territory is not invaded, America's need for chemicals will have to be supplied mostly by its own factories. If the Allies should be able to cross the Rhine and invade Baden and Württemberg, many of the largest chemical factories in the world, now making explosives, would probably be destroyed. Even if they remain intact, the reorganization of the German chemical industry to peaceful aims again will not be immediate. It looks as if the American dyestuff and fine chemical industry will have an excellent opportunity to place itself upon a permanent and profitable basis in the next two years.

LOAN EXHIBITIONS

We have made up and have available for loan to camera clubs, photographic dealers, or other responsible persons, who are able to find place for hanging, a number of exhibits of photographs, prize-winners and others, which have been reproduced in American Photography from time to time. Each exhibit consists of about fifty mounted prints, and while some are now on exhibition, we can offer several of these in the next two months, and should be glad to hear from those who would be interested in having them for a week or two. The exhibits weigh only a few pounds when packed, so that the express charges from Boston and back again are not very heavy. These must be defrayed by the borrower, but otherwise there is no expense attached.

ENTRY BLANKS

It has been our custom to print in the advertising pages each month rules and an entry blank for our monthly competition, our portfolio, and the Round World Exchange Club. Exigencies of space have compelled the omission of these forms this month, but copies of any or all of them will be mailed to any reader on application. We would suggest that those interested in these departments write for these coupons and keep them on hand, as we shall probably not publish them again in the magazine for some time.

EXPOSURE-TABLES FOR MARCH

DIRECTIONS: Find in the tables printed below the NUMBERS for SUBJECT, STOP, LIGHT, HOUR, and PLATE. Add them, find the sum in the last table, and give the exposure indicated. When the exposure fails to correspond with the speed-marking on shutter, use the nearest shutter-speed, preferably the lower. If sunlight falls over one shoulder, add **0**; if straight across subject, add **1**; if sun is ahead, add **2**. When using back combination only of lens, add **2**.

EXAMPLE

Average landscape	3	December, 11 A. M.	1
Stop U. S. No. 8	6	N-C film	1½
Intense light	0		

Adding these numbers, we get **11½**, and on referring to the last table, under **11½**, we find **1-20** second, which is the exposure to give. In this case you would use the speed marked **1-25** and open the lens a little, if possible; say, half-way to U. S. No. 4.

SUBJECT

Sea (only) and clouds	½	Street scenes, buildings, groups	5
Sea-views, snow-scenes, distant landscape	1	Portraits in shade	7
Open landscape, without foreground	2	Indoor portraits	8 to 10
Average landscape, with foreground	3	Interiors	8 to 16

STOP:—

f:2	*f*:2.3	*f*:2.8	*f*:3.3	*f*:4	*f*:4.7	*f*:5.6	*f*:6.7	*f*:8	*f*:11.3	*f*:16	*f*:22	*f*:32	*f*:45	*f*:64
				U.S. 1	U.S. 1.4	U.S. 2	U.S. 2.8	U.S. 4	U.S. 8	U. S. 16	U. S. 32	U. S. 64	U.S.128	U.S.256
1	1½	2	2½	3	3½	4	4½	5	6	7	8	9	10	11

LIGHT: Intense sunlight (inky-black shadows), **0**; Bright sunlight (strong shadows), ½; Faint shadow cast by sun, **1**; Dull (no shadows), 1½; Very Dull (whole sky very dark), **2**.

HOUR: 12M, ½; 11 a.m. and 1 p.m., ½; 10 a.m. and 2 p.m., ½; 9 a.m. and 3 p.m., **1**; 8 a.m. and 4 p.m., **2**; 7 a.m. and 5 p.m., **4**.

PLATE: AMERICAN, 1½. ANSCO FILM, 1½; Speedex Film, **1**. BARNET — Film, 1½; Superspeed Ortho., **1**; Ortho. Ex. Rap., **2**; Red Seal, **1**; Red Diamond, 1½; Self-screen Ortho., **2**; 550, ½. BURKE & JAMES — Atlas Film, 1½. CENTRAL — Special XX and Sp. Home Portrait, ½; Special, **1**; Special Non-halation, Comet, Colornon and Pan-Ortho., 1½. CRAMER — Crown, **1**; Anchor, **2**; Banner, 1½; Inst. Iso., 1½; Med. Iso., **2**; Commercial Isonon, 2½; Portrait Isonon, **1**; Trichromatic, **2**; Slow Iso., **5**; Contrast, **9**; Spectrum, **2**. DEFENDER — Vulcan, **1**; Vulcan Film, 1½; Ortho., **2**; Non-hal. Ortho., **2**; Slow, **9**; Process, **9**. DUFAY DIOPTICHROME, **7**. EASTMAN — Motion Picture Film, **1**; Portrait Film, **1**; Speed Film, **1**; Hawk-eye Film, 1½; N. C. Film, 1½. ENSIGN FILM, 1½. FORBES — Challenge, 1½; Snapshot, 1½. HAMMER — Sp. Ex. Fast, **1**; Ex. Fast, 1½; Aurora Ex. Fast, 1½; Ortho. Ex. Fast, 1½; Ortho. Non-hal., **2**; Fast, **2**; Ortho. Slow, 2½; Slow, **4**. ILFORD — Monarch, **1**; Zenith, 1½; Sp. Rap., **2**; Chromatic, 2½; Rapid Chromatic, **2**; Ord., **3**; Process, **9**. IMPERIAL — Flash-light, **1**; Spec. Sensitive, **1**; Orthochrome S. S., **1**; Spec. Rap. 225, 1½; Duonon Plate, 1½; Spec. Rapid 200, **2**; Non-filter, **2**; Process, **9**. JOUGLA — Violet Label, 1½; Green Label, **2**; Omnicolore, **7**. KODAK — Speed Film, **1**; N. C. Film, 1½. KODOID PLATES, 1½. LUMIERE — Sigma, ½; Blue Label, 1½; Film, 1½; Ortho. A, **2**; Ortho. B, **2**; Panchro. C, **2**; Autochrome (outdoors), 7½; (indoors), 8½; Process, **9**. MARION — Record, ½; Brilliant, **1**; P. S., **1**. NEW RECORD — Extra Fast, **2**. PAGET — XXX, 2½; XXXXX, **2**; Swift, **1**; Ex. Spec. Rapid, **1**; Ortho. Ex. Spec. Rapid, 1½; Panchro. Ord., **2**; Panchro. Colour (no screen), 2½; Spec. Rapid, 1½; Hydra Panchro., 3½; Hydra Rapid, 3½. PREMO — Filmpack, 1½; Speed Pack, **1**. ROEBUCK — Blue Label, **1**; D. C. Ortho., **2**; Ortho., **2**. SEED — Graflex, ½; Gilt-edge 30, **1**; Color Value, **1**; Gilt-edge 27, 1½; L. Ortho., 1½; 26X, **2**; Non-hal., **2**; Non-hal. L. Ortho., **2**; Tropical, **2**; C. Ortho., 2½; Panchromatic, 2½; 23, **3**; Process, **9**. STANDARD — Extra, 1½; Imperial Portrait, 1½; Orthonon, 1½; Polychrome, 1½; Thermic, 1½. STANLEY — 50, 1½; Commercial, **4**. ROGERS — Regular, **1**; Orthochromatic, **2**; Orthochromatic N. H., **2**. WELLINGTON — Extreme, ½; 'Xtra Speedy, **1**; Film, 1½; Iso. Speedy, 1½; Portrait Speedy, 1½; Anti-screen, 1½; Speedy Spec. Rap., **2**; Ortho. Process, **9**. WRATTEN & WAINWRIGHT — Panchromatic, 1½; Process Panchromatic, **3**.

3½ S 1/3000	4 S 1/4000	4½ S 1/2500	5 S 1/2000	5½ S 1/1250	6 S 1/1000	6½ S 1/700	7 S 1/500
7½ S 1/350	8 S 1/250	8½ S 1/150	9 S 1/100	9½ S 1/75	10 S 1/50	10½ S 1/40	11 S 1/25
11½ S 1/20	12 S 1/12	12½ S 1/10	13 S 1/8	13½ S 1/5	14 S 1/4	14½ S 2/5	15 S 1/2
15½ S 2/3	16 S 1	16½ S 1½	17 S 2	17½ S 3	18 S 4	18½ S 5½	19 S 7½
19½ S 11	20 S 15	20½ S 23	21 S 30	21½ S 45	22 M 1	22½ M 1½	23 M 2
23½ M 3	24 M 4	24½ M 6	25 M 8	25½ M 12	26 M 15	26½ M 24	27 M 30
27½ M 45	28 H 1	28½ H 1½	29 H 2	29½ H 3	30 H 4	30½ H 6	31 H 8

These tables are based on the 1914 *edition of the "American Photography Exposure-Tables," a new and revised form of the "Photo Beacon Exposure Card." Owing to the great increase in the speed of lenses and plates since the original compilation of these tables, it has been necessary to completely change the system of numbers corresponding to stops, plates and exposures, so that exposure numbers from this table are* 5 *units higher than in the old tables. The complete tables, in pocket form,* 3 *x* 5 *inches, containing full directions for obtaining correct exposure under all conditions, may be obtained from our publishers at the price of* 25 *cents postpaid.*

PRINT CRITICISM

Prints to be criticized should be sent to F. R. Fraprie, 221 Columbus Avenue, Boston, Mass. Only one may be sent during any month by a reader. They should be unmounted. Full data must be sent on coupon printed in advertising pages or furnished on request with return postage. Always put title, name and address, and words, "Print Criticism" on back of print.

*SOTARO SABA. "Penmanship."— Mr. Saba advises us that this is the first picture that he has taken with a new soft-focus lens, having imported three of these as the result of an advertisement which he saw in AMERICAN PHOTOGRAPHY, thus becoming the first possessor of this make of lens in Japan. He is naturally a little bit uncertain as to how successful he has been with his new tool, and asks for advice. It seems to us that he has done remarkably well for a first attempt with this class of lens, using it with judgment by not opening up to its fullest power, and so feeling his way gradually toward extreme softness. The arrangement of this study is interesting, and the composition is such as to strongly carry the attention to the sheet of paper just written, to which the artist's attention is also directed. It seems to us, however, that the untouched paper is too much in the light, and too high in key, and that there is too strong a light on the pattern of the gown; also on the forehead. It is well to concentrate the light, as is done here, but it should not be concentrated on the wrong place. Taken with a Spencer Portland lens, 9 inches' focus, on November 10, at 9 A. M. The exposure was about 2 seconds at f: 7 in a room well lighted. The Wellington Portrait plate was developed with rodinal, and the print is on Cyko, developed with M.-Q.

MERLE L. MESNER. "Portrait."— In posing your subject in this picture you have allowed her to lean back far too much, so that the body, instead of being vertical, slants very decidedly to the right. This gives a topheavy appearance, as if the young lady were likely to fall over backward, which is unpleasant and does not make a success of the portrait. The expression is natural and pleasing, though the lighting on the right side of the face is too dark, and the shape of the shadows unpleasant. You recognize that a little more exposure and lighter background would be an improvement. Your drapery is rather stiffly arranged and could be improved upon.

R. W. DAWSON. "Deer in Yellowstone Park."— This picture of two deer drinking is very interesting, and shows how fearless even wild animals will become if they are protected against the aggression of mankind, as they are in Yellowstone Park. It was unfortunate you could not have chosen your view-point a little more carefully, so as to avoid the tangled branches hanging down in the foreground.

PENMANSHIP — SOTARO SABA

SLEET — SEPTIMUS DAVIS

*Septimus Davis. "Sleet."— In addition to the fact that this print is excellently done from a technical standpoint, it has an unusual element of grace in the evergreen boughs curving so gracefully into the road, both in the foreground and the middle distance. This is the real interest of the scene, and we think it would be well to concentrate interest on this by trimming at least a quarter of the picture off of each side, making a vertical panel, in which the road runs to a point about two-thirds of the distance across the print. This will destroy the effect now so prominent, that the road runs straight through the center of the picture, and leave a very beautifully rendered landscape. Taken with a 5 x 7 Premo camera, fitted with a Goerz lens of 7 inches' focal length. The exposure was ¼ second, at stop U. S. 8, at 8.40 in January, with bright, hazy light. The Central plate was developed in M.-Q., and the print is on Azo C hard.

Arthur Hartman. "Miss Vanity."— The picture is interesting and unconventional in pose, but it seems to us that it would have been far more attractive had the young lady swung her head a trifle more toward the camera, so that her profile would have appeared, instead of an uninteresting curve of cheek, with no features visible. We would also suggest her sitting a little further back and leaning a little further forward, so as to give a rather more triangular position, and obviate the unpleasant bit of woodwork detail near the bottom of the left side.

B. O. Moody. "Watching for Father."— The picture of the baby is well lighted, and shows a complete stoppage of motion, which is always desirable. The snap, however, was made at an unfortunate time, for the baby's mouth, wide open, does not conduce, in this case, to a pleasing expression. You have trimmed rather closer than would seem necessary.

David W. Bugel. "Portrait of a Cat."— Your remark that the result is different from what you anticipated, because the cat moved over into the light, is one which would be anticipated by all who have tried to photograph cats. The writer has a cat which will keep a given position for any number of hours at a stretch, until the camera comes into sight, whereupon it invariably and instantaneously changes it for one much less desirable. Your print, as you have remarked, is far too dark, but this would seem to us to be due more to underexposure than to any fault of the print. Where the sunlight strikes the exposure is satisfactory, but you have left too much in the shade.

Gordon A. Woodward. "Snow Cave."— This photograph of rocks covered with ice and snow is a very interesting record, and one which you will doubtless be glad to have taken many times in the future. The reproduction of unusual aspects of nature by photography is always worth while.

Oscar W. Miller. "In Washington Park."— This is an interesting record of a beautiful formal garden, and well worth taking as a memento of a

BUTTONS VICTORIOUS — BUTTONS DEFEATED

ARTHUR VAN W. ELTINGE

pleasant day. The print is perhaps a trifle darker than necessary.

*Arthur Van W. Eltinge. "Buttons Victorious; Buttons Defeated."— Buttons' master vouches for the fact that the picture of Buttons defeated is the genuine article, that the bunch on the side of his head is the real thing, and that all the bandages were absolutely necessary. It is certainly a mournful-looking cat, and the contrast in apparent size and actual pride of posture is most striking. The fact that the same stool appears in both pictures shows the scale to be practically the same. The maker modestly disclaims any artistic merit in his prints, but it seems to us that they have real merit, both of technic and of story-telling quality. Taken with an Auto Graflex camera, 3¼ x 4¼, fitted with a Zeiss Tessar lens, Ic, *f*: 4.5, of 7 to 14 inches' focal length; portrait stop (wide open). The exposure was 1-65 second at 10 A. M. in November, with bright light. Premo filmpack, developed in tank, print on Velox portrait. Buttons Defeated — January, 1 P. M., bright light; exposure 1-80 second.

O. D. Ellis. "Summer Sport."— This photograph of a youngster dressed in white, and taken in a flat and brilliant light, would have been much improved by longer exposure and less development. In your desire to bring out full detail in the background, which was comparatively unimportant, you have clogged up your highlights so much that it is difficult for you to print out the details in the white garments. The face is also somewhat lacking in texture and expression for the same reason.

Harold Haines. "A Rainy Evening."— This photograph, though taken after dark and in a heavy rainstorm, by the light of lightning flashes alone, shows remarkably full exposure, considering the adverse conditions, and is not only an interesting record but a rather pleasing composition. The maker disclaims any artistic intent, being actuated only by curiosity to see how much detail he could record by the unusual light of a thunderstorm.

L. V. Mohr. "The Deserted Park."— This photograph represents a park landscape ladened with snow, there being apparently a foot or more on the deserted benches. It reproduces the atmospheric conditions extremely well, though the snow is rather lacking in detail and somewhat too gray. The arrangement seems interesting to us, and we doubt the advisability of trimming off any of the foreground.

Theodore McClintock. "The Rotunda, Fine Arts Palace."— The desire to preserve a record of

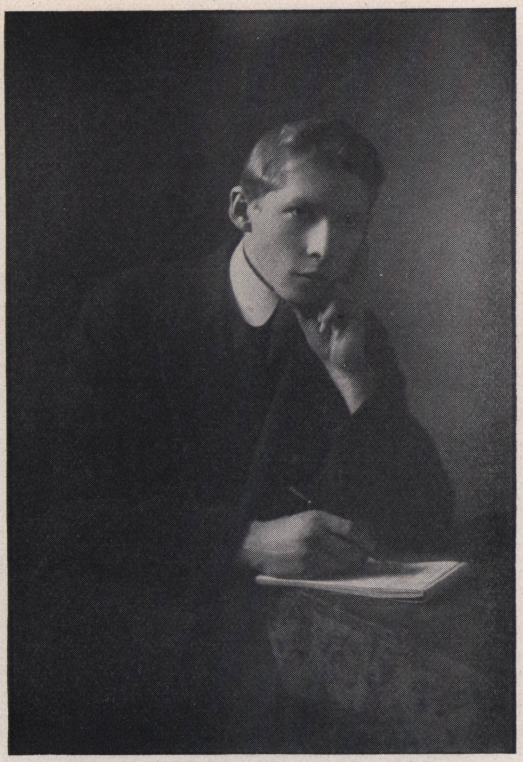
interesting things seen on a trip to the Exposition is a most praiseworthy one, and the picture, taken with a Brownie camera, is excellent, considering the limitations of your outfit. The most serious fault is that the camera was not held wholly vertical, but judicious trimming will entirely obviate this, though making the print a trifle smaller than it is now.

*H. R. Bazley. "Portrait."— This portrait seems to us to be made throughout in too low a key, and while there is some detail in the shadow side of the face, the contrast between this and the lighted side is too great, and the highlight on the nose entirely too strong. There are merits in the way the figure is brought out by the line of light on the left side against the dark background, and also against the lighter background on the right side. Still the lower part of the figure is too indistinct. The collar is too high in tone, and conventionality would indicate showing a trifle of linen at the wrists. The picture was taken with a 4 x 5 Pony Premo No. 4, fitted with a Bausch & Lomb Tessar Ic lens. The exposure was 1 second at stop *f*: 8, at 3.10 P. M. in June, with good light. The Wellington Anti-Screen plate was developed in Special M.-Q., and the print is on Professional Cyko buff.

R. H. Lombard. "Sisters."— This photograph of two young ladies standing on a piazza with a post between them, is not particularly well arranged. The post acts as a complete separation, and you have two pictures in one print, which could be cut in two to form two panels, with much better results than the present picture. Your lens is of such short focus that the nearer girl looks as if she were a foot or sixteen inches taller than the other. More time in this shady place would have given better exposure for the features, which are too indistinct.

R. Dissing. "A Shady Path."— Unless the figure in this picture is introduced to show the enormous size of the nearer tree, it would, in our opinion, have been better omitted. There are too many interests in the picture as it stands.

C. P. Woodnutt. "Sunlight and Shade."— Your suggestion is that you took this picture because of the brilliant contrast between the streak of light in the foreground and the surrounding foliage. This being the case, why do you show us a picture as large as you have? Instead of a print 3¼ x 5½, you should have one 2½ inches wide and 1¾ inches high, showing the gleam of light as something important in the picture, and having nothing to compete with it save the two tree trunks at the left. After trimming to this small size, you might find it advisable to enlarge. It seems to us that your exposure was markedly insufficient, and also that you could have obtained a much better composition here by going nearer to the light spot.



PORTRAIT H. R. BAZLEY

Frank Palky. "Mother and Daughter."— Evidently the subjects of your picture appreciate the fun which you had in taking, judging by the smiles which threaten to distort their faces at any moment. The grouping is rather pleasing, but the exposure could well have been considerably more, which would have given more detail in both highlights and shadows, provided the developing was properly done.

C. H. Folks. "Companions."— The two little ones in this picture are altogether too self-conscious, and though they are not looking at the camera, their expression is too set, and the attitude too stiff and unnatural. If you had asked the little girl with the rose to hand it to the other one just as you took the picture, you might, perhaps, have gotten a much more unconstrained result. A little longer exposure would have been desirable.

Lester C. Jenkins. "Through the Pines."— The interior of a pine grove is a difficult subject, for the shadow cast by the trees is so dense, and the colors so inactinic, that extremely full exposure must be given to get detail and atmospheric quality. Here you were deceived into giving too short exposure by the sunny foreground, so that your shadows in the distance are too dense, and the lighting of the sky altogether too bright.

F. B. MacFarland. "The Good Samaritan."— We are afraid that we cannot see much merit in this posed picture of a young lady in a shawl bending over a young man who seems to be shamming death. Subjects of this kind are hardly to be recommended for photographic genre, being altogether too gruesome, but if they are to be tried, your dead man should at least be placed in such a position as would indicate a complete relaxation of muscles, rather than an awkward one of extreme tension.

Fraser M. Heacock. "Via per Silvam."— There is more merit in this little print than in many of the road pictures which come to us. In the first place, the maker has taken a point where the road curves, so that he has a rather graceful line instead of the usual stiff triangle. Then he has taken such a position in the road that the perspective is rather pleasing, even though the lens was of rather too short focus. Finally the road leads somewhere, to the house faintly seen in the distance. The trees are pleasingly placed, and the fence adds to the picturesqueness of the view.

G. F. Green. "The Fattest Baby I Ever Saw"— Mr. Green desires us to reproduce for the benefit of our readers his photograph of a 4 months baby, weighing 26½ pounds, on the ground that nobody who sees it can refrain from smiling. Such a thing, however, is more of a medical curiosity than an object for mirth, and while the picture has doubtless value as a record, it is hardly, in our opinion, one to be shown much. The lens with which it was taken was of somewhat too short focus, and the feet and legs are foreshortened, and thereby apparently enlarged to an unnatural extent.

PALM SHADOWS CARLOS F. De MOYA

John A. Koenig. "Albert."— The picture of the baby, as you suggest, would have been better if it has been more carefully focused, and we are sure you would have liked it better had you pointed the camera lower, so as to get the baby's figure higher up in the picture. The main fault is, however, serious underexposure, which could well have been six to eight times what you actually gave. You took it so late in the day that it was beyond the power of your equipment to give sufficient exposure.

F. L. Weaver. "Hulling Beans."— This picture, taken under the blazing sunlight of the open prairie, is a very pleasing record, and its brilliancy shows how accurate were the exposure and development. It is unfortunate that some of your figures had to be relieved against a cloudless sky, but otherwise the picture is a model record.

Dr. J. M. Pierce. "November Shadows."— A road with telegraph poles on both sides of it, and you have included nine of these and a sign post, is not often the best subject for a landscape. In fact roads rarely are good subjects, and there is nothing about this road, or this particular part of it, to suggest to us why a picture should have been desired. A road to be worth including in a picture, should lead to something visible and worth approaching. You can have no real picture without a motive, and as a road is only the means of getting somewhere, when pictured the object approached should be visible.

Paul Caban. "Meditations."— Your figure adds nothing to the landscape, and therefore the landscape would have been better photographed without it. In this case you have too much foreground, and too much at the top. The indication at this place being for a horizontal rather than a vertical view.

*Carlos F. de Moya. "Palm Shadows."— This photograph, taken by one of our subscribers in the Dominican Republic, is one of the most pleasing bits of tropical landscape which has ever come to our attention. Tropical vegetation is usually so thick that it is hard to get an arrangement which is not so confused as to be uninteresting except as a record. Here, however, we have an open landscape, and hence the possibility of decorative arrangement which the maker has seized most happily. We would eliminate the fallen tree in the foreground, but otherwise have little suggestion for improvement. Taken with a 5 x 7 Premo camera, fitted with a Dagor lens of 7 inches' focal length. The exposure was 1-5 second, at stop *f*: 6.8, with 4 times light-filter. The Cramer Iso plate was developed in Metol Quinol, and the print is on Cyko Professional studio.

ROUND WORLD EXCHANGE CLUB

No. 11.5:

Am sending 3 cage e as requested. Abet 3 cone a; cart b; cent b; cage e.

Fine,

John Doe.

Judging from the enthusiastic response to the appeal in our February issue, members are fully alive to the possibilities and advantages of a circulating album and need but a general outline of a plan and a little help from the Editors to keep the ball rolling. To make it unnecessary for State secretaries to conduct extended correspondence, we announce details in these columns so that the handling of the circulating album may be understood.

The expense to each member is fifteen cents, plus a print for the album. Ten cents in stamps should be sent us for the purchase of albums and mounting material. Five return-addressed postcards should be sent to your State secretary. These contributions must be received by March 20, if you desire to cooperate with fellow members to make the albums a success. We will buy loose-leaf albums, sending them to State secretaries, together with the Exchange numbers of those who wish to take part in the work. He will check our list against the postcards you send him to make sure no one is overlooked. Then he will mail you a card announcing the closing date for album prints. You will mail him, as soon as possible, your print for the album; it may be any color or size up to 8 x 10 and should be unmounted and need have no white margin, as all prints will be double-mounted to make the album more uniform.

On the closing date, or before if you are prompt in sending prints to him, the State secretary will make up the album. Please note the following carefully. In the back of the book the secretary will fasten a mailing list. He will mail the album to the member whose name appears at the top of the list. This member will *immediately* send the secretary a postcard acknowledging receipt of the album. He will retain the album twenty-four hours, which is sufficient time to study each print. He will then cross his name from the top of the list and mail it to the next member, at the same time notifying the secretary that the album has gone along. The next member must immediately acknowledge receipt to the secretary, keep the album twenty-four hours, cross his name from the list, send the album to the third member and notify the secretary that he has done so; each member does the same in turn. Thus the album will circulate and the secretary will always know where it is. The secretary's name will be the last on the list, so the album will return to him. He will remove the leaves, mail them to us (of which more later) and retain the album covers for refilling; we hope the response to our plan will provide sufficient material for several albums for each State.

The great value in the circulating album is the opportunity it gives each of us to observe the work of others, to absorb new ideas and set new standards. Consequently, it will be a valuable feature if members will take the trouble to criticize pictures in the album which they know have poor features or could be much improved; by this we will all be benefited. The number and title of each print will be shown on the opposite page, so that criticisms can be made by number and dropped in the album box. The secretary will mail criticisms to the maker of each print when the album returns to him. Each member should also drop us a postcard telling us which picture in the album he liked best, and why. When the album comes to us we will reproduce the most popular pictures so that each member can gather an idea of what was contained in other albums than that of his own State.

In the college vernacular, we want to see a little of that red-hot enthusiasm called "pep" in the make-up of these albums. Those of you who are advanced owe to junior members some of the help and inspiration that you appreciated so much as a beginner. And those who are not so far advanced must remember that the criticism that comes your way is a friendly personal opinion offered by another in the hope that it will be of help. Take it as such.

For the present all you need do is send us ten cents in stamps, send five return addressed postcards to your State secretary and make plans to send your print promptly when it is requested.

Let every one do his share, it is not much, with his best foot forward and plenty of sizzling enthusiasm to make the first album of the year the best ever circulated by members of the Round World Exchange Club.

What a Member Says

In reference to some suggestions for the Exchange department, experience has shown me that our Exchange has lost many good careful workers from the lack of help and counsel from the advanced worker. I know there are a few good workers in our club who are very kind in this respect, especially when they find a beginner who is appreciative and does not try to secure an interesting collection of prints in exchange for his own poor efforts. Above

all things, some members ought not to forget their moral obligation to the club in answering all requests for exchange. If the prints sent you are not satisfactory, either return them or send an equal number.

* * *

OUR rapidly growing Exchange Club membership makes it essential to publish a supplement to the existing list. This will be compiled in April and published as soon as possible. Those planning to become members should apply immediately so that their names will appear on this list. Present members whose addresses have been changed since the publication of the first list please notify us at once, so that the correction may appear in the supplement. We will appreciate your promptness.

* * *

STATE SECRETARIES

The following members have been appointed State secretaries for their respective states, and for the present, at least, will serve also as album directors, to start circulating albums in their respective states.

788. M. T. Stradford, Birmingham, Ala.

744. Bert R. Kime, 624½ Main St., Little Rock, Ark.

518. E. C. Greenough, Venice, Cal.

737. Ina De Bursey, Calgary, Alta., Can.

836. Stanley Porter, 522 Toronto St., Victoria, B. C., Can.

861. C. A. Payfer, 202 Plessis St., Montreal, Can.

596. R. W. Franklin, Druid, Sask., Can.

113. R. R. Miller, Box 36, Pueblo, Colo. (Also for Kansas.)

262. B. A. Mills, 14 Whitehall St., Atlanta, Ga. (Also for South Carolina and Florida.)

35. W. W. Burlson, Jr., Talcott Bldg., Rockford, Ill.

167. Charles McLeonhardt, 1023 North 8th St., Terre Haute, Ind.

775. John H. Brown, Atchison, Kan.

153. J. W. Chadwick, Box 204, Middlesboro, Ky.

321. B. Carroll Rounds, Box 131, Strong, Me.

20. George W. Sothead, 11 Elvir St., Lynn, Mass.

314 Charles W. Shower, 82 Harper Ave., E. Detroit, Mich.

300. Oscar C. Kuehn, 3405 Caroline St., St. Louis, Mo.

139. H. L. Sadler, Box 724, Missoula, Mont.

496. J. E. Winter, College View, Neb.

418. F. L. Evans, 836 Beach St., Manchester, N. H.

114. James N. Mitchell, 1033 Chambers St., Trenton, N. J.

902. Samuel J. Wren, Box 34, Stanley, N. Mex.

331. W. C. Swart, 2 Catherine St., Schenectady, N. Y.

605. A. S. K. Holbrook, 422 North Race St., Van Wert, Ohio.

166. Dick Williams, Elmore City, Okla.

67. Lloyd Robinson, 681 East Burnside St., Portland, Ore.

348. Ralph B. Irwin, Culebra, Canal Zone, Panama.

34. Burdette Harrison, 210 Lack St., Tarentum, Pa.

17. C. B. Bolles, L. Box 351, Aberdeen, S. D.

179. Thomas H. Taylor, Brownwood, Tex.

633. L. Lester Ritter, 352 Fairview Ave., Winchester, Va.

327. G. H. Boyes, P. O. Box, Lancaster, Wis.

NEW MEMBERS

912. P. S. Daniells, 621 66th St., Oakland, Cal D.O.P. Bromide Prints, 3¼ x 4¼ to 8 x 10 of the two Expositions and general California views. Will also exchange lanternslides. Would like pictorial landscape and figure work.

913. U. W. Tryon, 327 Sargent St., Kendallville, Ind. Will exchange postcards any size up to 8 x 10, on developing out paper.

914. Albert W. Ayre, 1773 Lanier Pl., N. W., Washington, D. C. 2½ x 4¼ also 4 x 5. Landscapes.

915. Wm. Rob. Robertson, Santa Maria, Box 464, Cal. Various, Gaslight General.

916. Richard S. Foster, 223 Prospect St., Bridgeport, Conn. 2½ x 4¼, 3¼ x 5½. D.O.P. General.

917. W. M. Hooker, 196 E. Fair Ave., Lancaster, Ohio. 3¼ x 5½. Electric printing, Mt. Pleasant scenery, landscapes, and others, rocks and hills, etc.

918. Martin L. Cole, 166 King St., West, Toronto, Ont., Can. ¼ plate, 2½ x 4¼. All kinds, General, no portraits.

919. O. C. Kollath, 1500 First National Bank Bldg., Milwaukee, Wis. 2¼ x 3¼ by contact. Gaslight Prints, of general interest.

920. A. L. Gates, Cawker City, Kan.

921. Miss Ethel Taber Eltinge, 202 Green St., Syracuse, N. Y. 2½ x 4¼. D.O.P. Later enlargements. Offers in exchange, park views, waterfalls, lake views, landscapes, local views, etc.

922. J. R. Webb, 110 W. Hilda St., R.F.D. 4, Youngstown, Ohio. 3¼ x 5½. Different processes. Views and portraits.

RENEWALS

452. Mr. Edwin R. Moore, desires us to announce that through the loss of a suitcase containing several prints sent him by other members, he was deprived of means of replying, as he had no memoranda of the prints. He would like to get in touch with those who sent prints and asks that they communicate with him.

654. Archie Gilfillan, 1441 Page St., San Francisco, Cal. 3¼ x 5½. D.O.P. of locomotive, trains, and some draped and undraped studies, for steam and electric locomotives, trains, electric cars, cable cars, horse cars, Gaso Electric Motor Cars, old-time cars and locomotives, steam motor cars, draped studies. Would like all work on glossy cards or paper, please.

846. Arthur Soderstrum, 2944 East 28th St., Kansas City, Mo. 3¼ x 5½. Views of Colorado, Yellowstone Park and foreign scenes.

893. F. de Dekam, wishes us to announce that in exchange for his Peruvian pictures he can make use only of views of New York City and Schenectady, N. Y.

911. Arthur Van W. Eltinge, 202 Green St., Syracuse, N. Y. 3¼ x 4¼. D.O.P. Later enlargements, offers in exchange, cloud scenes, waterfalls, interesting pictorial views, mountain lake views, local historical views, etc. Prints will be all mounted according to nature of subject. Will be readily adaptable to albums just as they are, but prints can be easily detached if desired. Only perfect work and interesting subjects are offered. In exchange the best technical work is asked, as well as artistic taste and individual mounting.

QUESTIONS & ANSWERS

MISCELLANEOUS.— J. E. K., McDermitt, Nev., asks as follows: (1) Can you give me an idea of the copyright laws of the United States? (2) Are color photograph supplies costly? (3) Where can I obtain a plateholder for an old Voigtländer camera? (4) Will any shutter go on a lens with a 2 to 2½ inch aperture? (5) If the aperture of a lens is 1¼ inches and the focal length 7½ inches, what is its U S. equivalent? *Ans.* (1) If you will write to the Registrar of Copyrights, Washington, D. C., stating what you wish to copyright, and asking for the necessary blanks and information, they will be sent to you without cost. (2) Supplies for color photography are more expensive than those for black and white, owing to the greater difficulty of manufacture. They are not disproportionate to the manufacturers' work, however, and if they are used for commercial purposes the customer is perfectly willing to pay the price commensurate with the cost of the work. (3) Voigtländer & Sohn, 240-258 E. Ontario Street, Chicago, Ill. (4) Fitting a shutter to an old lens could be done by any shutter manufacturer at a moderate cost. Write the shutter makers and describe your lens, and they will give you estimates. (5) If the effective aperture is 1¼ inches, and the equivalent focal length is 7½ inches, the lens works at *f*: 6, which is nearly equivalent to U. S. 2. You had better read "How to Choose and Use a Lens," price 25 cents from our publishers, which will give you full information in regard to stops and their measurement.

* * *

ADJUSTING THE ENLARGING LIGHT.— C. J. P., Lansdowne, Pa., asks how to make an enlarging machine, using artificial light, to produce enlargements 5 x 7 and 8 x 10 or larger from 2½ x 3¼ and 3¼ x 4¼ negatives, asks the two following questions: (1) Will the distance between the light and the condensers remain the same for all sizes? (2) How do you find this distance if it is to remain the same? *Ans.* To get the best results the enlarger should be so constructed that the distance between the condensers and the source of illumination can be altered. The correct position of the light source is found by the following method. First set up the enlarger in about the position that you expect will be correct. Place a negative in the holder and insert it back of the camera, projecting the image upon the easel. Focus this sharply, paying no attention to the quality of the illumination. Having secured sharp focus remove the negative, being careful not to move the lens. Then move the light source back and forth until the illumination on the easel is even within the rectangle which the picture is to occupy. In order to design the equipment it is best first to set up some sort of a makeshift device so that approximate distances can be ascertained by preliminary experiments. It will be found that the greater the degree of enlargement, the farther the light source must be placed from the condensers.

* * *

WASHING.— (1) When potassium permanganate is used to eliminate hypo, in destroying the hypo it forms manganese dioxide, which is a black or brown insoluble compound. If this is deposited in the negative in any quantity, it will stain it and injure the printing quality. It cannot be washed out with water, but can be removed with a weak acid, such as oxalic or even sulphurous. A slight soaking after using this will suffice for removing the soluble manganese salts formed. It is, however, dangerous to use permanganate to remove any but the least traces of hypo, because of the unstable sulphur products which are formed, and no matter what your scarcity of water or shortness of time, we cannot recommend less than ten changes of water of five minutes each, on negatives or prints. (2) How much washing is necessary after toning prints, as by the hypo alum process? *Ans.* After using any method of toning a print, it should be thoroughly washed. (3) Dr. M. D. Miller has no longer any connection with our publications, and we are unable to furnish any information in regard to his methods. (4) In many developing solutions the difference between 14 drams of soda and 16 drams would not

be important, but in working out Thermo formulas it is essential to use the exact quantities called for, but you must use pure chemicals and not manufacturers' preparations containing ingredients other than those called for in the formulas. (5) In using mercuric iodide intensifier is it necessary to redevelop? *Ans.* It is not necessary to redevelop a plate intensified with mercury if it is wanted for immediate use. If it is to be preserved with the idea of making prints at some indefinite future time, it is certainly advisable to redevelop, fix and wash, in order to obtain as much permanency as possible.

* * *

INSTRUCTION IN FINISHING.— O. D. B., Salt Lake City, Utah, asks: Will you kindly advise where the numerous "operators" doing "amateur finishing" get their training for the work? What I desire is to know where the best training can be had by a person, already knowing something of photography, which will enable him to successfully do this work commercially, and at the same time in its highest degree of quality, and in all its phases, such as developing, printing, enlarging, lanternslide-making, etc. Is there any school making a special course of this, and where? Are there any books dealing specifically with "amateur finishing" and where may they be procured? *Ans.* Practically speaking all of the "finishers" have obtained their training in the hard school of practical experience. Many amateur and professional photographers have found their knowledge of photography to be utilizable in this business, and many others have got their training entirely by working in laboratories where they acquire training while being paid for their services. Finishing is no different from any other laboratory work, when done on a small scale, and when done on a large scale it is different only in the adoption of labor-saving devices and business economies. We know of no school which teaches this work specially, but the general instruction of the various photographic schools covers most of the work which a finisher is likely to have to do. The only publication on the subject with which we are acquainted is a pamphlet issued by the Eastman Kodak Company for professional finishers, which we assume is for free distribution.

* * *

GRADE OF ENLARGING PAPER.— C. W. S., Malta, Ohio, asks the following question: If I have a negative which requires a medium emulsion paper in contact printing, will it require the same in enlarging? If so, will that hold good for all grades? *Ans.* It is probable that our correspondent would get a result which would be more pleasing to him if he used a more contrasty grade of paper for enlarging than for direct prints, for the tendency when enlarging with proper exposure, is to reduce contrasts and make a flatter print. He would therefore do better to use the hard or contrast grade of his developing paper, such as Regular Velox, if enlarging on gaslight paper. Except for special purposes however, bromide paper should be used for enlarging rather than gaslight paper.

CORRESPONDENCE

This column is open, so far as space will allow, for the expression of readers' opinions on subjects of general interest. The editors are not responsible for opinions thus expressed.

All correspondence must bear the name and address of the writer as evidence of good faith.

EDITOR AMERICAN PHOTOGRAPHY:

In the January number of AMERICAN PHOTOGRAPHY I note that W. G. K. had trouble with a duplicator in not getting an even exposure over his plate. From my experience I think that it was not the duplicator that was at fault but the trouble was with adjusting the diaphragm.

If the diaphragm is not opened wide enough the center of the plate will be under-exposed and edges over, and if too wide the opposite will occur.— A. NORTON BUELL.

* * *

EDITOR AMERICAN PHOTOGRAPHY:

In reading the February issue of AMERICAN PHOTOGRAPHY to-day I notice the item on cinematography and static electricity. I would like to offer a few statements as to our experience with this more unwelcome but nevertheless frequent visitor in the world of cinematography. We have lost probably 3000 feet, yes more than that, of otherwise perfect negative because of the presence of static. It did not appear until cold weather and then only at intervals. We are using a Pathé film which is unbacked by emulsion as is the Eastman negative and our film is one and one-eighth inches in width. We have been using two cameras, one the Pathéscope amateur camera which is practically the Pathé standard but adapted to the narrower width film; and also a Pathé professional studio camera. The former costs $150 and the latter $475.

Static seems to make no special friends nor play favorites, for it has appeared with equal promptitude in both cameras, and you will note how it varies. One lot of negative that we exposed down on the Cape during moderately cold weather contained 900 feet, three 300-foot reels, and the static was present in two reels, sometimes running along for 40 or 50 feet, then again there would be as much that was absolutely free from it when it would break out seemingly worse than before. We have had static on this when the

thermometer stood at 55 or 60. We have had cases when the first fifteen or twenty feet of a reel of film would be static and after that the rest of the reel would be absolutely free and clear.

We have tried loosening the pressure plates, removing black velvet on pressure plates and polishing them. We have tried brass handles. We have tried running wires from the metal frame of the camera at the gate house down to the ground. We have tried a stunt recommended to us by one of our Canadian friends which was to cut two circles of high-grade blotting paper, moistening them thoroughly and putting them inside the film magazine, one sheet on either side of the reel of film. We have tried a sponge soaked in ammonia and placed in the camera during operation, and the only thing that we really think has finally eliminated static for us has been the keeping of our negative in a large can in which there is a dish of water and in addition to this to loosen thoroughly every reel of negative before it is put into the magazine.

Neither the removal of the black velvet and the polishing of the runway at the gate, nor the loosening of the pressure plates, nor the brass handles, nor wiring had any effect whatsoever on static. This comes down to the question of "What is static electricity?" and as near as we can find out from investigation it is agreed by authorities that static electricity is occasioned by the explosion of molecules of dust and that, unlike ordinary electricity, it cannot be conducted through wires and metal rods. Static electricity is all on the surface and cannot be conducted or controlled in any way whatsoever.— E. P. Cornell, Treasurer, Pathéscope Company of New England.

[This trouble is the cause of great annoyance to printers as well as photographers, and in cold, dry weather the printed sheets get so infected with static that they stick together like brothers. I have seen a spark an inch and a half long taken off a printing machine. This is generally overcome now in printing establishments by fastening a lot of stripped tinsel to the machine in such position that it rubs against the paper, thus removing the charge and conducting it off the iron frame of the machine and thence to the ground.

It is very difficult to do this in a motion picture camera, and there is no doubt that keeping the film moist is the best thing. The principal trouble with this is that it will ruin the film in a few days if it is not used promptly.— Ed.]

* * *

Editor American Photography:

I was interested in the article in the February American Photography by Chas. I. Reid, on cinematography and static electricity. Perhaps you would be interested in an account of my experience with same phenomenon in ordinary still photography. Being employed in a laboratory where electrical testing is carried on, frequently accompanied by violent high tension discharges, this trouble was caused, so the film manufacturers claimed, by electrical discharges. Our first experience with it occurred while using filmpacks, a number of exposures were ruined. We found out by test that packs that had never been near the laboratory were also affected, so we again communicated with the film manufacturer who in the meantime had made tests on films from stock of the same emulsion number and it was found that apparently that whole batch of emulsion was subject to this peculiar marking. The makers later informed us that they traced the trouble to defective raw stock. They replaced all our stock of films of that particular emulsion number and although that happened more than a year ago and we have used a great many filmpacks in that time the trouble has never appeared since. The theory that the trouble is caused by static electricity, generated by friction, is reasonable; but in view of the experience just described, does it not seem probable that some other factor is contributing to this effect? In our attempts to locate the cause of the trouble, exposures were made with films of different batches of emulsion, under similar conditions, and only the one batch of emulsion produced this effect.— Geo. G. Cousins.

* * *

Editor American Photography:

I noted in the February number that you gave as a reason for the non-production of any pictures in the criticism department, that they were so poor, or words to that effect.

I have been thinking several times to unburden my mind on this subject, and this is a good opportunity.

Now I take it that a picture sent in for "criticism" is sent in for "criticism." If the amateur thinks it is good enough for a competition, he has no business sending it in for any other purpose. I have sent you quite a few, and I sent them in strictly for criticism. They did not satisfy me, and I wanted to know what the matter was. I do not think that there should be the slightest kick on the most rigid going over a picture. I sometimes think the critic gets a little "smart" or sarcastic, which I believe should be avoided. But, to publish a picture in the criticism department because it is "good," seems to me to utterly ignore the very reason for the department. I myself have gotten more information from pictures that were scored (and published) than from those that were "damned with faint praise." For the "good" examples, I look in the fore part of the magazine, and at the prize pictures. It is not only "what to do," but more, "what to avoid."

Another matter: It seems to me that an editor of a photo magazine could add a great deal to the worth of his publication if he would conduct a "mail" criticism department. Of course demand return postage. It might be limited to subscribers on the books, and not to chance readers or buyers. The comment would necessarily be brief. I have many a time had a print which two or three or more words would have set me straight, "Used the wrong paper, try soft." "Looks like an over-exposed negative, try Farmers Solution." "Use a 3-times ray-filter on this." "Did you use an acid stop bath between the developer and fixing solution?"

The above give my idea of some of the criticisms that you would make.— W. D. Sell.

[Our answer follows. We invite a full expression of opinion on this subject from all interested readers:

"Your letter of February 3d is very interesting. Replying to the suggestion that poor pictures be published and criticised, we would say that educators are almost unanimously agreed that it is the poorest kind of teaching to show a bad example, even as something to be avoided. A bad picture makes an instantaneous impression on the eye, and even though it be cursed in print, the visual impression is likely to remain longer than the mental impression.

"There usually are faults in the pictures which we select for publication in "The Portfolio," but there is a certain standard below which we will not go for any reproduction in the magazine, even for criticism, and the December pictures were so few and so poor that there was not one which we would be willing to show our readers.

"As for mail criticism, we would be only too glad to do it for everybody if we could, but in the past two or three years we have criticised an average of one hundred prints a month in "The Portfolio," and were we to criticise all that we were asked to by mail, they would easily run up to five hundred a month. The average cost of a criticism to us, between time and material, either of the editor or a paid critic, is about 50 cents, and it is the fellow who makes the most objection about subscribing to the magazine who sends in forty prints to one competition, asks to have them all criticised, and cancels his subscription because it is not done.

"We have thought long and earnestly over the possibility of criticising all prints sent in to us. We would like to do it; we cannot do it without asking a fee, and so many of our readers would think we were imposing on them if we asked a sum which would not half pay our expenses, that we are not sure that it would be wise to do this.

"Thanking you for your interest, we remain,

"Very truly yours,

"American Photographic Publishing Co."]

NOTES AND NEWS

Photograms of the Year 1915. The annual review of the world's pictorial photographic work. Edited by F. J. Mortimer, F.R.P.S. London, Hazell, Watson & Viney, 1916. Price, $1.25 paper, $1.75 cloth.

Mr. Mortimer has produced a volume of the usual attractive pictorial content, and with as many pictures as usual in spite of the war, and the fact that German and Austrian pictures of course do not appear at all. A number of excellent prints by American workers appear, and the review of American pictorial work is from the pen of W. H Porterfield. The general feeling of the writers seems to be that there is hope for art, photographic and otherwise, in spite of all that pessimists have said. Sanity in pictorial work is the key-note, and freakish work is conspicuous by its absence. This is as it should be.

* * *

There is being agitated the organization of a society to be known as "The American Association of Amateur Photographers" which will have for its purposes the protection of the amateur photographer; the founding and fostering of a desire to take up photography as a means of obtaining more good and pleasure out of life; the dissemination of new and important knowledge concerning photography as it has bearing upon the work of the amateur photographer; the holding of periodical exhibitions of the work of members in various large centers; the educating of persons who show an unusual fitness for higher work in photography but whose means do not permit an extended training. Anybody caring to have further particulars concerning this organization may have them by addressing Allen P. Child, 2846 Tracy Avenue, Kansas City, Mo.

* * *

Burke & James have recently placed on the market the latest offering of an electric printer which they describe as the Rexo Rapid Printer, Style F. The price is $5.00, which is very reasonable considering the efficiency and convenient construction of the apparatus. It will accommodate glass or film negatives 5 x 7 or smaller and has embodied in it several features typical of higher priced printers, notably the diffusing screen and device for vignetting, retouching, etc. We have examined this printer and, efficiency and price considered, believe that it should be accorded a ready sale.

* * *

At a meeting of the Queen's Camera Club, Kingston, Ont., which was recently held, Mr. A. B. Klugh

gave a lecture on "The Photography of Plants in Their Haunts." The address was illustrated by a large number of very beautiful lanternslides, showing plants photographed in various parts of Canada by the speaker. The lecturer gave notes on each picture, telling the name of the plant, the Province in which it grew, many interesting details about the species shown and pointed out how such technical details as the lighting, focussing, choice of position, etc., had been managed in securing the result aimed at.

At the close of the address Professor McClement moved a vote of thanks, saying that the pictures which had just been exhibited were an exceptionally fine collection both from a scientific and an artistic standpoint.

* * *

FRANK V. CHAMBERS, publisher of *The Camera*, has acquired from the American Photographic Text Book Company the entire stock of their four-volume library of *Amateur Photography*, which he is using as a premium with subscriptions to *The Camera*, enabling purchasers of this magazine to get this valuable set of books at a price far lower than it has ever previously retailed at. Full particulars can be obtained by addressing *The Camera*, 210 N. 13th Street, Philadelphia, Pa.

* * *

SPECIAL features incorporated in the new Eastman Amateur printer are the adjustable masking device and the automatic centering lamp holder. The mask is so constructed that it may be adjusted to any size or shape from the small V. P. up to nearly 4 x 6 inches. When the mask has been adjusted the lamp can easily be centered so that the illumination will be even. Workers who are in the habit of trimming their prints to make the most of them pictorially, will be interested in these features of the Eastman Amateur printer. In addition it has the usual devices for automatic light control of the pilot and printing lamps, and can be used as a darkroom ruby lamp for the development of plates or films.

* * *

MR. W. H. SALMON, manager of the Minneapolis branch of the Defender Photo Supply Company sailed for Europe the last week in January in connection with the Defender interests.

* * *

THE importation of photographic plates into Belgium has been forbidden by a decree of the German Governor-General since the middle of October, 1915, according to *Die Photographische Industrie*. This order, which does not apply to importations from Germany, was doubtless caused by the fact that the Belgian photographic dealers generally have sold only foreign plates, German manufactures in general having been boycotted to a considerable extent. It has been almost impossible for German firms, with a few exceptions, to find customers in Belgium during the war. Since the introduction of English and French plates is now prohibited, Belgium will soon be a profitable trade field for German firms.— *Apollo*.

* * *

ANY of our readers who are well advanced in technic, and desire to improve in their pictorial work, would do well to join one of the postal camera clubs formed for the purpose of mutual criticism of prints. One of these clubs, which contains some very good workers, is "The Camera Craftsmen," whose director is Mrs. W. K. Menns. This club has at present vacancies for two or three serious workers, and will be glad to receive application for membership from such, accompanied by three prints, which will be passed upon by the print admission committee. Full information can be had by addressing Mrs. W. K. Menns, 79 Harvard Street, Chelsea, Mass.

* * *

THE Association for the Advancement of Applied Optics of Rochester was recently formed by a number of scientists connected with the research departments of the Eastman Kodak Company, Bausch & Lomb Optical Company, and other Rochester firms. At the first general meeting of the Society, held January 4, 1916, Dr. P. G. Nutting discussed "The needs of applied optics." On January 18, 1916, Dr. C. E. K. Mees spoke on "The photographic surface and its relation to applied optics." At the third meeting, February 1, Dr. Hermann Kellner described "The development of the ophthalmoscope." Subjects of similar scientific and technical interest will be discussed at future meetings.

* * *

A FIRE which occurred at Sprague-Hathaway Company's plant in West Somerville, Mass., on January 16 destroyed one-half of their four-story brick building and practically ruined the contents of the building, entailing a loss estimated at over $60,000. In ten days' time they moved into new quarters, equipped the plant with modern apparatus and are doing business.

Their new location is only three minutes' walk from their old place of business. We understand the new building is to be rebuilt on modern plans and equipped with the latest and best apparatus for doing their special work.

* * *

THE Camera Club of New York have had a very busy season. Every Tuesday evening, which is the club night, an entertainment has been given. In addition to lanternslides and musical offerings, the club have had lectures by the following eminent artists: Henry W. Ranger, Elliot Dangerfield, J. William Fosdick, T. A. Smillie and George Bogart.

Exhibitions have been going on every month and already a list includes the honored names of Pirie

McDonald, Dudley Hoyt, Henry Wolf, and pictures by Edward Stricker. Later in the season we have Interchange exhibits and also Competition for prizes of "regular" and "fake" pictures given for members.

Photographers visiting New York City will be most cordially received at the Camera Club.

* * *

MEETINGS of the Fourth Annual Convention of the Photographic Dealers' Association of America will take place at the Hotel Statler in Cleveland, March 7, 8 and 9. Everything is in readiness for the entertainment of the photographic dealers and their wives. The program for the convention follows.

PROGRAM FOR 1916 CONVENTION PHOTOGRAPHIC DEALERS' ASSOCIATION OF AMERICA

TUESDAY, MARCH 7, 9.30 A.M.

Address of Welcome,
Hon. Harry L. Davis, Mayor of Cleveland.
Response, F. E. Gatchel, Louisville, Ky.
President Fowler's Annual Address.
Secretary's Report.
Treasurer's Report.
Appointment of Nominating Committee.
Appointment of Committee for Place of Next Meeting.
Appointment of Resolution Committee.
Appointment of Manufacturers' Committee
Report of Developing and Printing Committee.
Best methods of conducting a developing and printing department. Economics in Amateur Finishing.
J. W. Allison, New York, *Chairman.*
"The Proper Compensation of the Store Salesman"
Mr. Chas. Heusgen, New York City.
(To be followed by general discussion.)
"Profits" Address by J. J. Wood, *Pres.*
The Burrows Bros. Co. Cleveland.

LUNCHEON, 12 o'clock

Speaker — D. E. Agler, Van Wert, Ohio.
Topic — "The Photographer and the Dealer"

AFTERNOON AND EVENING

Exposition of Photographic Arts and Industries. Coliseum, 1 to 11 P. M.

WEDNESDAY, MARCH 8, 9.30 A. M.

Window Decorating Suggestions with Stereopticon Slides.
(Followed by discussion)
"The National Photographers Association and the National Dealers' Association"
Address by L. A. Dozier, *Pres.* P. A. of A.
The Stevens Bill,
Address by Geo. A. Waddle, Counsel
Goodyear Tire & Rubber Co., Akron, O.

LUNCHEON, 12 o'clock

"Advertising" Dudley Field, Ansco Co.

AFTERNOON

Exposition of Photographic Arts and Industries Coliseum, 1 to 11 P. M.

EVENING

Eight o'clock. Theatre Party for members and Ladies.

THURSDAY, MARCH 9, 9.30 A. M.

Report of Manufacturers' Committee.
Practical Stage Demonstration Sale of Photographic Goods.
Unfinished Business.
Report of the Nominating Committee.
Election of Officers.
Report of Committee for place of next meeting.
Awarding of prize for the Window Decorating Competition, $25.00.

LUNCHEON, 12 o'clock

Speaker — Dr. Wm. T. Stuchell.
Topic — "The New America."

AFTERNOON

Exposition of Photographic Arts and Industries. Coliseum, 1 to 11 P. M.

EVENING

Seven o'clock. Banquet (informal) followed by dancing.

The Exposition feature promises to be larger than ever before and unusual interest is being displayed in the Window Display Competition, as well as the National Photographic Competition. Dealers are urged to bring their wives, a royal welcome and good time being promised everybody.

The annual dues are $5.00, which includes the three luncheons at the Hotel Statler, theatre party, banquet and dance, season ticket for the Exposition of Photographic Arts and Industries, and a printed report of the Convention.

The cooperation of dealers in sending in their applications promptly will be greatly appreciated, as reservations must be made to accommodate every one at the various activities. Application should be made to H. M. Fowler, President Photographic Dealers' Association of America, 241 Engineers Building, Cleveland, Ohio.

* * *

MESSRS. ALLISON & HADAWAY, 235 Fifth Avenue, New York, announce that a very material increase in the price of Record plates will be necessary on all future importations, as the English manufacturers have advanced their prices. The importers have a fair stock on hand of goods purchased at the old price, and will not advance rates until these are exhausted. Users of these plates who find it possible to make advance orders for their requirements will consequently effect a considerable saving.

* * *

THE 10th Annual Exhibition of the Montreal A. A. A. Camera Club will be held April 10-15, 1916. Exhibits must be delivered before March 20th. Entry blanks can be obtained by addressing the Secretary, at 250 Peel Street, Montreal, P. Q., Canada.

Photo by C. M. Bagwell

Getting Clean Results

There is more than just speed needed to justify a a lens—you must have the covering power and definition that do get clean results under difficult conditions of light. And such results are certain with a

Bausch and Lomb-Zeiss TESSAR LENS

Master of Speed and Light

The Tessar is the greatest antidote to failure. The extreme speed of the Ic Tessar, F: 4.5, makes it unequalled for reflecting cameras, snap shots or portraiture. Its illuminating power is so great that it can be relied on for difficult work on cloudy days or indoors. The Ic is three times as fast as ordinary camera lenses, and its covering power is very large in proportion to focal length. Tessar IIb, F: 6.3, is a fast anastigmat lens, with 61% more speed than the usual camera lens, and is the standard anastigmat selection. It can be fitted to any style hand camera.

Your dealer can tell you about trying a Tessar. Our booklet "What Lens Shall I Buy" is sent upon request

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Leading American makers of Photographic and Ophthalmic Lenses, Microscopes, Projection Lanterns (Balopticons), Stereo Prism Binoculars and other High Grade Optical Products

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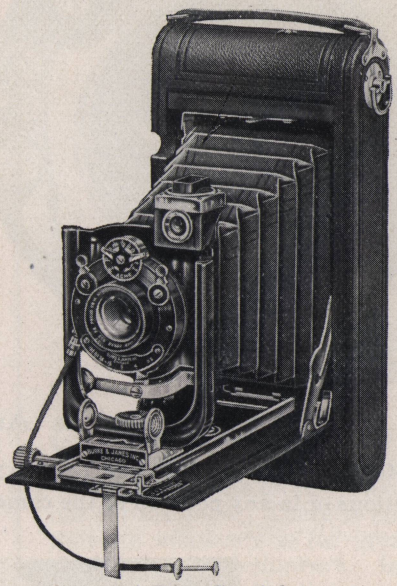
Recognition Won By REXO CAMERAS

THESE new cameras are winning on sheer superiority. They offer features not incorporated in similar cameras, and if you want the latest and best in camera construction you will choose one of the *Rexo Cameras.*

Reasons Why

Lens Quality—Regularily equipped with the finest rapid rectilinear lenses obtainable. Rigidly tested and guaranteed. *Shutter*—Guaranteed Ilex Shutters used exclusively. *Finder*—New Rexo Masking Finder, showing only those objects that will appear in the finished picture. Instantly adjusted to vertical or horizontal use. *Standard*—Rigid one piece U-shaped construction, with maximum rising and sliding movement. Operating on wide bed track. The ideal standard. *Focusing Device*—The only camera at anything like its price equipped with rack and pinion for fine focusing. Self-aligning focusing scale. *Back*—Sure locking back with new film aligning plate that absolutely prevents curl or buckle of the exposed section of the film, insuring sharp pictures. *Rexo Specials*—Handsome Morocco covering, Acme Shutter and finest anastigmat lens. A De Luxe edition.



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These are some of the *Rexo* points of excellence. The best way is to see the camera for yourself. Ask your dealer or send for the *1916 Ingento Book* describing the full line of *Rexo, Junior and Rexoette Cameras,* priced from $2.00 to$66.00.

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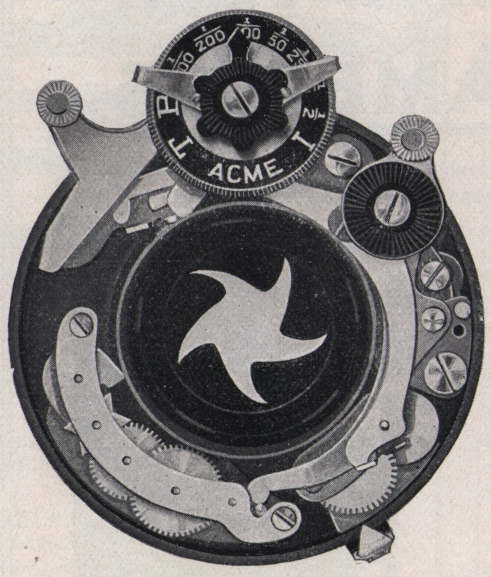
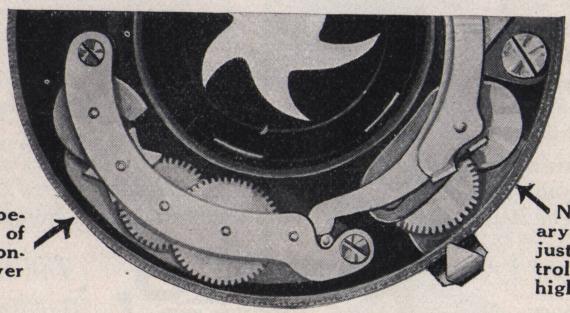


and some of the largest foreign camera manufacturers have adopted ILEX SHUTTERS. Why? Because their merits have proven that the ILEX OPTICAL COMPANY have the only means of furnishing a Shutter that is RELIABLE, ACCURATE and DEPENDABLE.

An European manufacturer of a world renowned Shutter has found it necessary to substitute gears for the unreliable air pumps or valves in order to compete with the famous ILEX SHUTTERS, which are THE ONLY VALVELESS SHUTTERS in the market. This, of course, is an infringement on the ILEX patents,

Every Speed is Automatically Controlled

therefore exact variations and accuracy on all indicated speeds under any climatic conditions or in any position of the camera.



Note escapement on set of gears for controlling slower speeds.

Note auxiliary speed adjuster for controlling the higher speeds.

The extensive adaptation of the highest grade Anastigmat lenses made in the United States and Europe is another evidence of the superiority of ILEX SHUTTERS.

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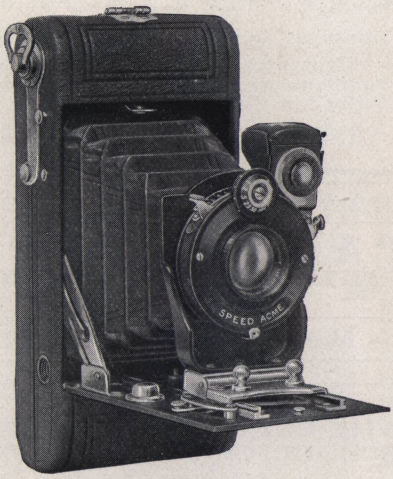

V. P. Speedex, 2¼x3¼, with Celor lens
Acme Shutter

Take a Speedex in Your Pocket

WHEN YOU GO SKATING OR COASTING

THE full enjoyment of winter sports does not permit the carrying of a cumbersome camera. With a V. P. SPEEDEX in your pocket you are equipped to take active part in skating, coasting, skiing and snowshoeing, and at the same time you are ready to take pictures of the very scenes of which you are a part. The V. P. SPEEDEX fitted with GOERZ CELOR LENS is the very outfit for the purpose, though the GOERZ DAGOR and GOERZ SYNTOR LENSES, under favorable conditions, will "stop" your subject. Its weight is but 15½ ozs.; closed for the pocket it measures 1¼x2¾x6; uses standard 2¼x3¼ roll film; has brilliant finder; two tripod sockets; front locks at infinity; closer focusing up to 4 feet is done with accurate focusing lever, and the camera is beautifully finished and covered with genuine morocco leather. Full information in regard to this instrument at your dealer's or direct from us.

PRICE

With Celor, F:4.8, Acme Shutter, Max. 1-300th **$55.00**
With Dagor, F:6.8, Compound Shutter, Max. 1-300th..... **52.00**
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Photographic Success
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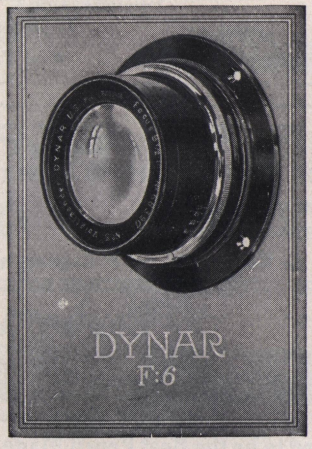
Dynar

F:6



SO MUCH depends on the lens that one may fairly say that your success depends on it. Take the Dynar for instance. There is no denying that its efficiency is far greater than the best rapid rectilinears. In the first place it has double the speed at full aperture, where there is no comparison between the covering power and the definition of the two lenses. Indeed, in order to equal the Dynar in this respect, your rectilinear must be stopped down to F:16, making the Dynar just eight times as efficient. That is about the right ratio — is it any wonder so many amateurs prefer the Dynar — a high grade but moderate priced anastigmat?

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3¼ x 5½ or 4 x 5 cells.....**$23.50**

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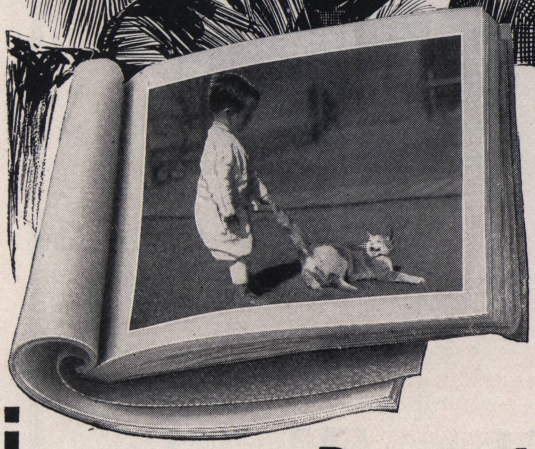

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With either lantern slides or actual prints, the Balopticon gives full value to all details with a crisp sharpness over the entire field. The new gas-filled Mazda lamp of the Balopticon gives more brilliant illumination and with much less current than the arc lamp. It is wholly noiseless and automatic, requiring no rheostat.

Home Balopticon, for prints, postcards and opaque objects	$35.00
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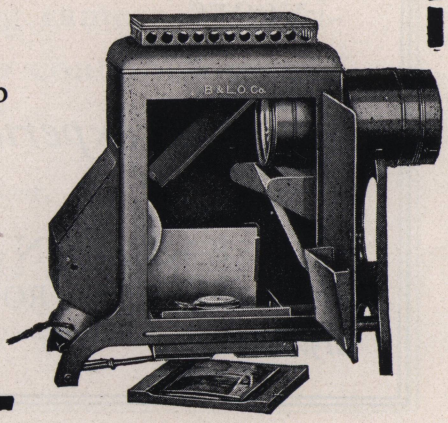

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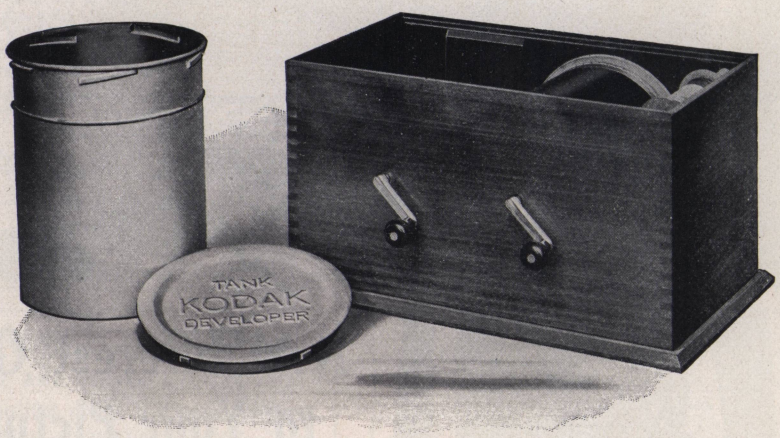

The novice who used a

Kodak Film Tank

for the first time yesterday got better results than he could get by tray development in twenty years.

"The experience is in the Tank."

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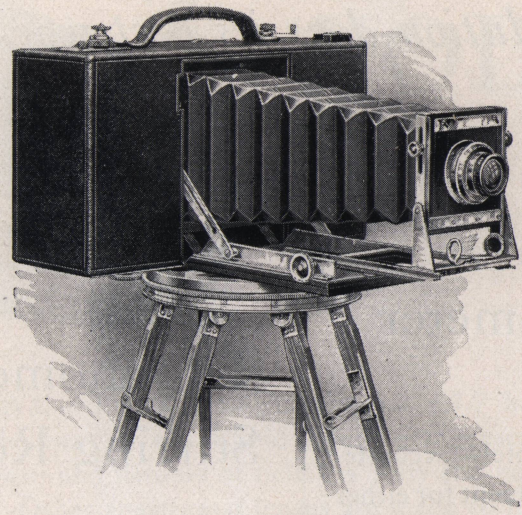
The No. 5 Cirkut Camera



This camera makes a picture 5 inches wide and of any length up to 42 inches, on one roll of Eastman daylight-loading Film. It includes as much or as little of the view as may be needed to secure the best pictorial effect, and more than one negative may be made on the same roll of film without removing it from the camera.

The entire outfit including camera, lens, tripod and Cirkut tripod top, is contained in one sole leather case.

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There is just one temperature at which a solution does its best work.

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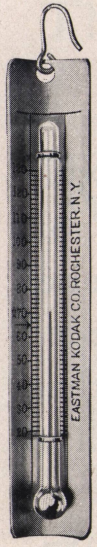

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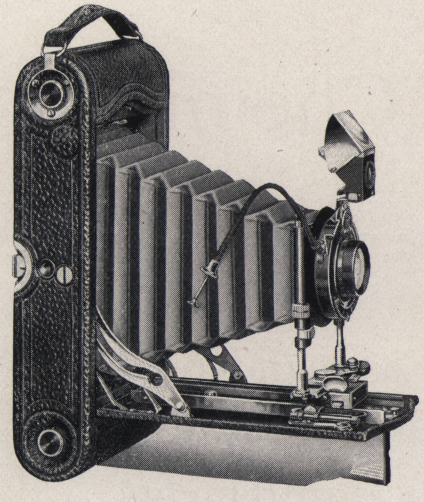

The New 3A KODAK

$27.50

THE LENS. The Kodak Anastigmat *f*.7.7 has a trifle more speed than the best of the Rapid Rectilinear lenses and in quality (depth, *sharpness* and flatness of field) is fully the equal of the best anastigmats. Other anastigmat lenses are made to fulfill a dual purpose; they cover a certain size at their largest opening and cover a larger size as wide angle lenses, when used with a smaller stop. They are, therefore, corrected with a view to this double purpose.

The Kodak Anastigmat does not pretend to cover a larger area than that for which it is listed. But for its specific work, covering with minute sharpness the area which it is supposed to cover, none is better. This also means a saving in manufacturing. Which explains why we can sell it at a lower price than the other high-grade anastigmats.

THE AUTOGRAPHIC FEATURE.—You can *make sure*, can write the date and title on the film, permanently, at the time you make the exposure. After the last exposure you can similarly write your name on the film—an identifying mark that is valuable when you send your work to the finisher. And this "Autographing" the film is a matter of seconds only.

No. 3A Autographic Kodak, (3¼ x 5½), with Kodak Anastigmat lens *f*.7.7, $27.50

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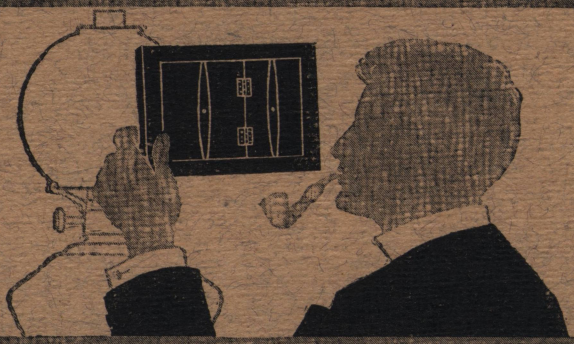

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